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ABSTRACT

This study examined the relationship between dimensions of organizational climate and support for innovation in community colleges. Faculty members from an urban community college with an international reputation for innovation completed questionnaires designed to measure perceived support for innovation and climate-related variables. Respondents, in aggregate, perceived high levels of support for innovation. Perceptions did not vary in terms of respondents' gender, age, education level, racial identification, tenure in current position, or employment status. Faculty with more years of professional experience reported higher levels of support for innovation. Support for innovation was also positively associated with intent to stay. Organizational climates characterized by open communication and high levels of work autonomy were found to be associated with perceptions of support for innovation. Communication openness and work autonomy were positively associated with high scores on the support for innovation measure. These two variables accounted for more than one-half of the variance in support for innovation scores. Study findings were reviewed and interpreted in the context of changing community college environments. Interventions related to enhancing organizational support for innovation--including feedback linkages, conflict forums, and participatory decision-making--were discussed. (Contains 25 tables, one figure, one appendix, and 284 references.) (KP)

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ORGANIZATIONAL SUPPORT FOR INNOVATION: PERSPECTIVES OF COMMUNITY COLLEGE FACULTY

by

Jay R. Dee

A thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Education
in the Graduate College of
The University of Iowa

May 1999

Thesis supervisor: Professor Alan B. Henkin

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An Abstract

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ABSTRACT

Change is implicit in the missions of many community colleges. They are expected to be responsive to changing economic, political, and social concerns of local communities. The adoption and implementation of organizational innovations may enable appropriate responses to external expectations for change.

Organizational capacities to innovate are mediated by organizational climate. Organizational climates may encourage risk taking and creative activity, or diminish initiative to change. The purpose of this study was to examine the relationship between dimensions of organizational climate and support for innovation in community colleges.

Faculty members (N=184) from an urban community college with an international reputation for innovation completed questionnaires designed to measure perceived support for innovation and climate-related variables. Respondents, in the aggregate, perceived high levels of support for innovation. Perceptions did not vary in terms of respondents' gender, age, education level, racial identification, tenure in current position, or employment status. Faculty with more years of professional experience reported higher levels of support for innovation. Support for innovation was also positively associated with intent-to-stay. Faculty who indicated that they were unlikely to search for a job at another organization reported higher levels of support for innovation.

Organizational climates characterized by open communication and high levels of work autonomy were found to be associated with perceptions of support for innovation.

Communication openness and work autonomy were positively associated with high scores on the support for innovation measure. These two variables accounted for more than one-half of the variance in support for innovation scores.

Study findings were reviewed and interpreted in the context of changing community college environments. Interventions related to enhancing organizational support for innovation, including feedback linkages, conflict forums, and participatory decision-making, were elaborated.

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May 1999

Thesis supervisor: Professor Alan B. Henkin

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PH.D. THESIS

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TABLE OF CONTENTS

Page

LIST OF TABLES v

LIST OF FIGURES vii

CHAPTER

I. INTRODUCTION 1

Overview 1
Need for the Study 2
Theoretical Framework 4
Statement of Problem 7
Definition of Terms 9
Limitations of the Study 11
Summary 12

II. LITERATURE REVIEW 14

Organizational Change 14
Innovation 18
Innovation in Higher Education 21
Innovation and Community Colleges 24
Research Perspectives on Innovation 27
Diffusion of Innovations 28
Planned Innovation 30
Conflict 32
Complex Organizations 33
Communication and Innovation 40
Autonomy and Innovation 41
Organizational Climate and Support for Innovation 43
Dimensions of Organizational Climate and Support for Innovation 44
Leadership 44
Ownership 45
Norms for Diversity 46
Continuous Development 47
Consistency 48
Research on Support for Innovation 48
Support for Innovation in Learning Organizations 51
Summary 52

III. STUDY DESIGN AND METHODOLOGY 54

Study Design and Data Collection 54
Study Population 56
Measures 57
Siegel Scale of Support for Innovation 58
Communication Openness Sub-scale 60
Work Autonomy Scale 60
Data Analysis 62

IV. DATA DESCRIPTION AND ANALYSIS 65

Respondent Characteristics 66
Respondent Characteristics and Innovation 69
Responses to the SSSI 69
Gender 70
Age 71
Education 73
Racial Identification 75
Years in Profession 76
Years in Current Position 78
Employment Status 79
Intent-to-Stay 80
Departmental Setting 81
Departmental Setting and Innovation 82
Academic Field 82
Degree Program 82
Organizational Climate 84
Organizational Climate and Innovation 86
Summary of Findings 90

V. DISCUSSION AND INTERPRETATION OF FINDINGS 97

Context for Change 97
Interpretation of Findings 100
Administrative Interventions 107
Support Feedback 109
Express Conflict 111
Differentiate Strategy from Tactics 113
Summary of Recommendations 116
Recommendations for Future Research 117
Conclusion 119

APPENDIX 122

BIBLIOGRAPHY 129

LIST OF TABLES

Table		Page
1.	Study Variables	55
2.	Reliability Coefficients for Organizational Climate Measures	63
3.	Respondent Characteristics	67
4.	SSSI: Scale Means and Standard Deviations	70
5.	Gender and Perceived Support for Innovation	71
6.	Age and Perceived Support for Innovation	72
7.	Age (re-categorized) and Perceived Support for Innovation	73
8.	Education and Perceived Support for Innovation	74
9.	Education (re-categorized) and Perceived Support for Innovation	75
10.	Racial Identification and Perceived Support for Innovation	76
11.	Years in Profession and Perceived Support for Innovation	77
12.	Years in Profession (re-categorized) and Perceived Support for Innovation	78
13.	Years in Current Position and Perceived Support for Innovation	79
14.	Employment Status and Perceived Support for Innovation	80
15.	Intent-to-Stay and Perceived Support for Innovation	81
16.	Academic Field and Perceived Support for Innovation	83
17.	Degree Program and Perceived Support for Innovation	84
18.	Communication Openness and Work Autonomy: Means and Standard Deviations	85
19.	Support for Innovation, Communication Openness, and Work Autonomy: Correlational Results	87
20.	Support for Innovation Regression Models: Unique Contribution of Work Autonomy Variable, Controlling for Communication Openness	88

21. Support for Innovation Regression Models: Unique Contribution of Communication Openness Variable, Controlling for Work Autonomy 89

22. Support for Innovation Regression Models: Unique Contribution of Work Autonomy Variable, Controlling for Respondent Characteristics and Communication Openness 91

23. Support for Innovation Regression Models: Unique Contribution of Communication Openness Variable, Controlling for Respondent Characteristics and Work Autonomy 92

24. Summary of Results of Hypothesis Tests 94

25. Summary of Recommendations- 117

LIST OF FIGURES

Figure	Page
1. Conceptualizations of Organization	39

CHAPTER I

INTRODUCTION

Overview

Colleges and universities, as social institutions, are inextricably linked to their environments. They depend on their environments for financial support and legitimacy. Institutional objectives, strategies, and missions are responsive to the concerns of a broad array of stakeholders, including taxpayers, policy makers, business leaders, parents, and students.

Variation in the social, economic, and political priorities evident in institutional environments suggests that change in higher education systems is continuous and inevitable (Meyer & Scott, 1992). Institutions of higher education have traditionally been characterized, however, as resistant to change (Bragdon, 1967; Jellema, 1986). When changes do occur, they are typically externally induced and incremental (Curry, 1992; Hesburgh, 1971). Incremental approaches to change may be appropriate in environments where the economy is in equilibrium, knowledge bases are stable, and pressures for high-level performance are minimal. Institutions are deemed legitimate, in these circumstances, when they meet the ceremonial expectations of stakeholders (Cyert & March, 1963; Meyer & Rowan, 1983; Pfeffer & Salancik, 1978); in the case of higher education, hold classes and award degrees. Contemporary realities of global markets,

international competition, rapid development and obsolescence of technologies, and political demands for institutional responsiveness and accountability suggest, however, that theoretical perspectives related to incremental organizational change may be limited in terms of explanatory utility. Academic institutions may endeavor, alternatively, to provide long-term support for change and encourage their members to scan institutional environments in search of change opportunities.

This study focuses on organizational support for change in an urban community college with an international reputation for developing and implementing innovative educational programs. Community colleges are microcosms of their environments (Dougherty, 1994). They may be viewed as catalysts for economic growth, and as implements in workforce training and development initiatives. Innovation and responsiveness to local needs are deemed to be prominent priorities. The purpose of this study is to examine faculty members' perceptions of institutional support for innovation. Relationships between perceived support for innovation and a range of individual and institutional variables are examined in context.

Need for the Study

Change and resistance to change are inevitable. Organizations and the individuals who work in them resist change for a number of reasons: fear of the unknown, fear of failure, preferences for and interests in the status quo, lack of trust, and lack of commitment, among others (Basadur, 1995; Lippitt, Watson, & Wesley, 1958). Suspicion of outside interests may condition organizational members' perceptions of

externally-induced changes (Watson, 1972), and internally-developed rationales for change may be discredited by members and leaders who endorse existing modus operandi and dominant norms, values, and assumptions. Organizations, moreover, may adopt "sunk cost" mentalities, whereby previous investments in existing technologies preclude consideration of new investments in innovation (Seymour, 1988). The perspective of the organization, in this case, is "We have sunk so much in the old technology that we can't change now."

Resistance to change in higher education institutions may be reinforced by unique cultural and structural factors of colleges and universities. Low-level interdependence among faculty members, a lack of clear performance indicators, norms favoring the status quo, and internal competition for scarce resources may deter change efforts (Derr, 1976; Levine, 1980; Lindquist, 1978). Departmental structures that segment faculties into self-governing sub-units delimit opportunities for interaction and coordination, which may be necessary to initiate and implement institution-wide change (Brown & Eisenhardt, 1997; Seymour, 1988). New ideas and initiatives may be difficult to introduce and sustain in loosely-coupled organizations (Firestone, 1985; Weick, 1976), where individual departments possess authorities to make decisions unilaterally (Lincoln, 1986).

Difficulties in terms of instituting change and innovation in higher education institutions do not mitigate the need for institutional renewal and responsiveness to stakeholder and referent concerns. Where colleges and universities appear unreceptive to change, in spite of environmental pressures, consequences may be severe in terms of

losses of legitimacy and financial support (Honeyman, Wattenbarger, & Westbrook, 1996; Meyer & Scott, 1992).

Community colleges are expected to be especially sensitive to environmental needs, given missions related to local economic development and career training. New firms, or firms expanding to new product lines, may expect community colleges to provide training for workers and managers. Rapid obsolescence of many information-based technologies, moreover, suggests the need for on-going training programs targeted toward the latest developments in industry. Changes in the way instruction itself is delivered -- for example, distance learning, virtual classrooms, Internet-based instruction, collaborative learning, and team teaching -- suggest a need for consideration of innovative service delivery approaches.

Innovation is a critical factor in institutions expected to be on the "cutting edge" of technology. The importance of change and innovation to community colleges, and the difficulties associated with initiating and implementing change in higher education, suggest the need to improve understandings of variables that mediate the extent of success of innovation.

Theoretical Framework

Innovation and variables related to organizational change have been examined through two major theoretical frameworks – structural functionalism and social constructionism. Researchers who utilize a structural-functional framework suggest that organizations address a number of functional requisites, including goal setting,

adaptation, integration, and motivation (Parsons, 1951). Organizational structures are developed to fulfill certain functions. Communication networks may be established, for example, to meet integration needs, or incentive systems may be created to enhance motivation. Researchers examine relationships between structural variables and organizational performance along a continuum of functional indicators, such as return-on-assets, productivity, efficiency, or rate of innovation (Price & Mueller, 1986). The focus, here, is on objective, directly-measurable organizational variables.

Researchers who utilize a social constructionist framework suggest that patterns of interaction among organizational members constitute the structure of an organization (Poole, Seibold, & McPhee, 1996). An organization obtains its purpose and legitimacy in the daily interactions of its members. These interactions involve how organizational members interpret each other's behaviors, how they interpret the external environment, and how they develop and understand the organization's image (Baxter & Montgomery, 1996; Berger & Luckmann, 1966; Kruckeberg & Starck, 1988; Newsom & Scott, 1985). Variables of interest include attitudes, values, and perceptions of organizational members. These attitudes, values, and perceptions, assertedly, condition members' behaviors and interpretations of organizational reality (Deetz, 1992; Mumby, 1988; Weick, 1979).

Social constructionism may be a more appropriate theoretical framework than structural functionalism for the study of innovation in complex organizations, such as colleges and universities. Structural functionalism suggests an emphasis on quantifiable organizational variables. Studies that employ a structural-functionalist perspective may

yield, for example, correlations between the number of innovations adopted by an organization and a range of quantifiable variables, such as size or institutional age (Blau, 1973). The number of innovations adopted by an organization, however, may not be a significant factor in terms of the success of organizational change. Not all innovations will be of equal significance; some will have more impact than others. Not all innovations will yield benefits; some may weaken the organization (Tornatzky, Fergus, Avellar, Fairweather, & Fleischer, 1980). Social constructionism, alternatively, suggests a focus on organizational members' perceptions of innovation. The success of institutional change efforts may depend, in large part, on the extent to which organizational members perceive their organization as supportive of innovation, change, and risk-taking behaviors (Basadur, 1995; Siegel & Kaemmerer, 1978).

Members' aggregate perceptions of their organization constitute a measure of organizational climate (Campbell, Dunnette, Lawler, & Weick, 1970). Organizational climate refers to the current patterns of interaction among organizational members (Hellriegel & Slocum, 1974), and has been identified as a critical variable in terms of institutional capacities to change and respond to environmental stimuli (Duncan, 1972; Hage & Aiken, 1967; Peterson & Spencer, 1990). Organizational climates may be perceived as more or less supportive of innovation and creative functioning. Organizations that support innovation develop and maintain climates where members feel secure and free to experiment with new ideas, and where diversity of thought and opinion is valued (Daft & Becker, 1978; Thompson, 1969).

Organizational perceptions are manifest in the attitudes and behaviors of organizational members (Weick, 1979). Employees' perceptions of organizational climate may condition their attitudes toward risk taking and their receptivity to new ideas (Siegel & Kaemmerer, 1978). Perceptions held by those who initiate and implement innovations appear to influence the extent to which new ideas are successfully integrated within the organization (Basadur, 1995; Damanpour, 1987). Faculty members, as the main technology of higher education institutions, play major roles in advancing new ideas; their commitment is essential for implementation and institutionalization of related innovations (Curry, 1992; Hefferlin, 1969; Seymour, 1988). The role of faculty members as primary actors in curriculum development and research, and as participants in the shared governance of institutions (Bess, 1988; Birnbaum, 1988) suggests a rationale for the study of faculty members' perceptions of their organizational climate in terms of support for innovation.

Statement of Problem

Community colleges can operate as professional organizations; their faculty members possess specialized knowledge in various areas of teaching, research, and service (Abbott, 1988; Pavalko, 1988). Professional organizations depend on practitioners, rather than administrators, to develop process-related innovations. Implementation of innovations, moreover, is accomplished through negotiation, rather than through direct administrative command. The challenge for organizational management, then, is to facilitate the development of an organizational climate that

encourages individual creativity and engenders individual commitment to implementing innovations.

The problem addressed in this exploratory study focuses on the perceived organizational climate of an urban community college that has been recognized as an international leader in terms of innovation. Faculty perceptions of organizational support for innovation serve as the dependent variable in this study. Independent variables were selected on the basis of their theoretical potential for association with support for innovation as indicated by the related research literature. To explore hypothetical relationships associated with the organizational climate of a community college and perceived support for innovation among faculty, the following research questions and null hypotheses were developed:

Research Question 1: Do perceptions of organizational support for innovation vary with individual characteristics?

Null hypotheses: There will be no significant differences in perceptions of organizational support for innovation in terms of gender, age, education, racial identification, years in profession, years in current position, employment status (full-time or part-time), and intent-to-stay.

Research Question 2: Do perceptions of organizational support for innovation vary by departmental setting?

Null hypotheses: There will be no significant differences in perceptions of organizational support for innovation in terms of respondents' academic field or degree program in which the majority of their teaching activities occur.

Research Question 3: Is there a relationship between organizational support for innovation and other aspects of organizational climate; specifically communication and work autonomy?

Null hypotheses: There will be no relationship between organizational support for innovation and respondents' perceptions of communication openness and work autonomy.

Study purposes extend to include the development of a conceptual framework for the study of support for innovation. The theoretical and empirical literatures related to innovation are well-developed (Burns & Stalker, 1994; Damanpour, 1996; Hage & Aiken, 1970). The conceptual framework for support for innovation, however, is evolving. Variables with empirically-established relationships with innovation are included as independent variables in this study, in order to test potential associations with support for innovation. The translation of empirical relationships in the innovation literature to hypothetical questions for the study of support for innovation may enable subsequent theory-building and conceptual development.

Definition of Terms

For the purpose of this study, the following operational definitions were employed:

Academic field is defined as the content area in which the majority of respondents' teaching activities occur; for example, natural sciences, social sciences, humanities, and vocational/technical education.

Autonomy refers to the extent to which organizations enable self-determination and discretion in terms of work methods, schedules, and evaluations (Breaugh, 1985; Hackman & Oldham, 1975; Turner & Lawrence, 1965).

Change is defined as the alteration of structures, processes, and/or behaviors in a system (Zaltman & Duncan, 1977). Change implies the introduction of something different to an organization.

Communication is a process of creating meaning, whereby individuals attempt to develop shared understandings (Baxter & Montgomery, 1996).

Communication openness refers to the extent to which organizational members feel free to interact with one another (O'Reilly & Roberts, 1976).

Community college is a higher education institution offering an associate degree as the highest award (American Association of Community Colleges, 1995). Degrees may lead directly to career preparation or to transfer to four-year institutions.

Degree program is defined as the program area in which the majority of respondents' teaching activities occur; for example, associate in arts, associate in science, college credit certificate programs, vocational certificate programs, and community academic programs.

Faculty member is defined as a higher education employee whose work involves teaching, research, and/or service responsibilities.

Innovation is defined as the introduction and adoption of an idea, behavior, or process that is new to an organization (Daft, 1978; Damanpour & Evan, 1984).

Intent-to-stay is the likelihood that an individual will not search for a job at another organization (Price & Mueller, 1986).

Organizational climate refers to the current common patterns of interaction among organizational members (Hellriegel & Slocum, 1974). It is reflected in members' attitudes, expectations, and perceptions of the organization (Campbell, Dunnette, Lawler, & Weick, 1970).

Organizational environment refers to the social, political, and economic context in which an organization operates (Meyer & Scott, 1992).

Support for innovation refers to the extent to which organizations facilitate the development and use of new ideas among their members (Siegel & Kaemmerer, 1978).

Limitations of the Study

Three areas of limitation are noted. The first limitation is associated with the methodology employed in this study. Survey research instruments delimit response options, in contrast with open-ended interview techniques (Spitzberg & Cupach, 1989). Self-reports of work perceptions do not provide objective data, in contrast with data derived from organizational records (Price & Mueller, 1986). Survey research methods, however, enable the collection of a broad array of data from a large number of respondents. Self-reports, moreover, may be appropriate for studies of socially-constructed work environments where employee attitudes, values, and perceptions condition interpretations of organizational reality.

The second limitation is related to the generalizability of the study findings. Study data were collected from one community college. Single-site research may improve understandings of micro dynamics and determinants of organizational change and innovation (Clark, 1996). Study findings, however, may not be generalized beyond the subject institution. Replication of this study in additional higher education settings may extend implications of findings beyond the subject institution.

The third limitation is inherent in the study design. Causality and directionality of associations among variables cannot be determined in non-experimental settings.

This exploratory study examines faculty perceptions of organizational support for innovation. Support for innovation is only one factor contributing to employees' perceptions of the organization. This study is related to the broader concern of organizational climate in professional organizations, and is thus associated with studies of commitment, communication, intent to stay/intent to leave, job satisfaction, work autonomy, and other organizational climate variables.

Summary

Change and innovation are implicit in the missions of many community colleges. They are expected to be responsive to changing economic, political, and social concerns. Initiating change in higher education institutions, however, is difficult at best. Where the major technology of the organization -- in this case, faculty members -- possesses specialized professional knowledge, change can seldom be implemented through top-down command. It must be implemented, instead, by the faculty members themselves.

The challenge for community college leadership, then, is to facilitate the development of a climate that is supportive of risk taking and creative functioning. This study focuses on faculty members' perceptions of organizational support for innovation at a large, urban community college with a preeminent international reputation for engaging in innovative approaches to instruction.

CHAPTER II

LITERATURE REVIEW

This review includes the applicable related literature on organizational change, and focuses, more specifically, on dimensions of organizational innovation. Research on innovation in higher education institutions is reviewed. Various research perspectives on innovation -- diffusion of innovations, planned innovation, conflict, and complex organizations -- are elaborated. Finally, inquiry on organizational support for innovation is considered.

Organizational Change

Capacity to change has been identified as a critical variable in terms of the performance and viability of knowledge-based organizations (Basadur, 1995; Drucker, 1985; Senge, 1990), including colleges and universities (Birnbaum, 1988; Blau, 1973; Fisher, Tack, & Wheeler, 1988; Keller, 1983). Community colleges must adapt to changing consumer (student) demands, as well as market-driven workforce needs of local economies (Clark, 1996). Successful adaptation to environmental and market opportunities may depend, in part, on organizational receptivity to change and risk taking (Brown & Eisenhardt, 1997).

Change may be defined as any alteration of the structures, processes, and/or behaviors of an organization (Zaltman & Duncan, 1977). The alteration may be planned, spontaneous, or evolutionary (Hanson, 1995). Planned change involves attempts by organizational members to manage events so that the outcomes of change are directed by design. Spontaneous change is the result of external circumstances or random occurrences; here, change is not deliberate. Evolutionary change reflects the cumulative effects of incremental alterations in organizations.

Most organizational changes are externally induced; that is, forces external to the organization compel it to adapt in order to remain competitive or to maintain institutional legitimacy (Burns & Stalker, 1994; Deal & Kennedy, 1982). Change in higher education institutions may be induced by external governing boards, public policy mandates, demographic shifts among student populations, workforce factors, or legal decisions. Alternatively, organizational change may be preemptive (Damanpour, 1996). Organizational members may scan their environments in efforts to identify potential threats and convert them into opportunities.

Organizational change is a negotiated process, which requires interaction among administrators and professional staff who are responsible for implementing the change (Pressman & Wildavsky, 1979). Lewin (1958) described the change process in terms of "unfreezing" the organization; members begin to abandon established behavioral norms and repertories in favor of creative activity and risk taking. Work roles and responsibilities are redefined through organizational change processes (Katz & Kahn,

1978). Changes are then institutionalized; that is, they are incorporated into the long-term functioning of the organization (Berman & McLaughlin, 1974).

A number of researchers suggest that organizational change follows a punctuated equilibrium model of development; long periods of stability are interrupted by brief, tumultuous periods of radical change (Abernathy & Utterback, 1978; Gersick, 1988; 1991; Tushman & Romanelli, 1985). Baumgartner and Jones (1993), for example, in a study of public policy making, suggested that political change is characterized by extended periods of equilibrium periodically punctuated by an issue's rise to agenda status.

Punctuated equilibrium may be an appropriate metaphor where the cycles of change are not rapid. Congressional elections, for example, are held every two years. Turn-over of legislative leadership positions and committee chairs, moreover, is infrequent. Opportunities for issues to reach agenda status, then, are limited (Kingdon, 1984). The pace of change experienced by many for-profit firms and non-profit social institutions, however, suggests the need for an alternative metaphor that acknowledges the need for continuous change. Retail, production, and service organizations encounter short product development cycles and rapid shifts in global market conditions. "Many firms compete by changing continuously," (Brown & Eisenhardt, 1997, p. 1). Similarly, community colleges are challenged to respond to the varying workforce needs of local economies and the demands of educating increasingly diverse student populations. Continuous change in community colleges requires risk-taking investments in new programs and technical flexibility in terms of meeting the needs of students who tend to

be older, employed, enrolled part-time, and more likely to face kinship responsibilities and come from low socio-economic status backgrounds (Clark, 1996; Rendon, 1995; Tinto & Russo, 1994).

Managerial implications of continuous change differ from those derived from the punctuated equilibrium perspective. Punctuated equilibrium models of change emphasize the disruptive nature of change, and suggest that activities related to change should be isolated from the technical core of the organization (Thompson, 1967). The "skunkworks" approach to organizational change, for example, isolates research and development units responsible for change from the remainder of the organization (Galbraith, 1982). Change efforts may be more effective, it is posited, when individuals responsible for change do not experience interference from other organizational actors (Kanter, 1988). Similarly, Lorsch and Lawrence (1965) advocated the creation of separate organizational units in which liaison personnel coordinate change efforts among sales, production, and research functions.

Continuous change, conversely, suggests the need to mainstream change; here, change becomes the responsibility of every member of the organization (Basadur, 1995). Change activities are not confined to one segment of the organization. Instead, they become part of each member's work role. Functional responsibilities yield to organizational prerogatives for change (Donnellon, 1996). Organizational climates, in these institutions, support collaboration, open communication, teamwork, and divergent thinking (Basadur, 1995). Where the creative functioning of all organizational members is deemed critical to institutional competitiveness and/or viability, organizational support

for innovation may determine, in part, levels of institutional effectiveness and responsiveness to complex environments.

Mainstreaming change appears to be an appropriate strategy for higher education institutions, given norms and formal procedures that grant faculty members broad discretion in terms of initiating and implementing change (Austin, 1990; Curry, 1992). Facilitating the development of organizational climates that encourage entire faculties to engage in change efforts constitutes a primary responsibility of institutional leadership (Fisher, 1994; Fisher, Tack, & Wheeler, 1988).

Innovation

Innovation is a more specific term than organizational change. Change is the adoption of something different; innovation is the adoption of something new (Daft & Becker, 1978; Kossek, 1987). All innovations imply change, but not all changes are innovations (Seymour, 1988). Some changes are not perceived as new by organizational members. Instead, they are seen as reiterations or reformulations of the status quo.

Innovation has been defined as the adoption of an idea, behavior, or process that is new to the organization (Daft, 1978; Damanpour & Evan, 1984). The innovation need not be an original discovery or first-ever use; it need only be new to the adopting organization (Pierce & Delbecq, 1977; Rogers & Shoemaker, 1971). Distance learning, for example, is not new to higher education, but it would be considered an innovation by a community college adopting the strategy for the first time (Roark, 1985).

Innovations are often deemed improvements, given popular perceptions that what is new is, ipso facto, better. Innovations, however, may either strengthen or weaken the organization (Tornatzky, Fergus, Avellar, Fairweather, & Fleischer, 1980). Organizational boundary-spanning efforts may mediate levels of success of related innovations (Delaney, Jarley, & Fiorito, 1996). Boundary spanning refers to efforts by organizational personnel to communicate with and learn from individuals and institutions external to the organization (Mintzberg, 1978; Wilensky, 1967). Individuals who engage in boundary spanning may provide the organization with valuable information about environmental trends and concerns, which may shape planning for innovation and change (Dollinger, 1984). Where continuous environmental feedback is absent, however, organizational innovations may be neither timely nor appropriate.

Institutional and individual responses to innovation may vary by the type of innovation employed by the organization. Damanpour (1987) described three types of innovations: technological innovations that deal with the production of good or services, administrative innovations that pertain to organizational structures or processes, and ancillary innovations that involve organizational outreach and collaboration with clients. Technological innovations in a community college setting may involve the creation of new programs and courses, or the adoption of new teaching methods. Examples of administrative innovations include the development of institutional governance structures, or the implementation of new program review processes. Ancillary innovations may be associated with the establishment of partnerships between community colleges and local industries.

The innovation process has been the subject of extensive research. Rogers (1983) offered a two-stage model of the innovation process. Stage one involves setting an agenda, analyzing the problem, and identifying an appropriate innovation. Stage two includes redefining or restructuring the innovation to fit the unique purposes of the organization, clarifying behavioral expectations about the innovation, and incorporating the innovation in routine organizational activity. A similar four-stage process was identified in a study of higher education innovations: (1) realizing the need for innovation, (2) developing solutions, (3) implementing the selected solution, and (4) terminating or incorporating the innovation (Levine, 1980).

Many researchers have adopted Zaltman, Duncan, and Holbek's (1973) suggestion that innovation consists of two stages -- initiation and implementation. Initiation refers to the generation and development of ideas (Damanpour, 1996), while implementation involves the translation of ideas into practice (Tornatzky & Johnson, 1982). Recent studies have included consideration of a third stage -- institutionalization of innovations. Seymour (1988) characterized institutionalization as "that part of the process in which the college or university community accepts the program as a legitimate and viable entity" (p. 25). The innovation loses its "new" status, and becomes a part of routine organizational functioning (Curry, 1992).

Though process models imply linearity and sequential progression, most researchers acknowledge that organizations may recycle to previous stages of the innovation process (Berman, 1981; Poole & Baldwin, 1996), especially where

information is ambiguous and additional problem definition and analysis may be needed (Basadur, 1995; Hirokawa, 1988).

Innovation in Higher Education

> Reforming a college curriculum is as difficult as moving a graveyard -- Woodrow Wilson, president, Princeton University, cited in Bragdon, 1967.
>
> Every advance in education is made over the dead bodies of 10,000 resisting professors -- Robert M. Hutchins, chancellor, University of Chicago, cited in Jellema, 1986.

The initiation, implementation, and institutionalization of innovations is decidedly more difficult to achieve in complex organizational environments where the multiplicity and variety of stakeholder interests are likely to generate political conflict and resistance to change (Baldridge, 1971; Cyert & March, 1963). Higher education institutions have been characterized as organized anarchies with unclear technologies, fluid participation by members, and goals that are difficult to measure (Cohen & March, 1974). Where technologies -- the processes organizations use to convert inputs into outputs (Perrow, 1986; Woodward, 1958) -- are unclear, innovations may appear to be random, based on trial and error or imitation (Cohen & March, 1974). Where organizational participation is fluid, members may have few opportunities for communication about innovations, and coordinating mechanisms related to implementation may be constrained. Where goals are difficult to measure, determinations of innovation effectiveness are frequently inconclusive, particularly in the short-term (Baldridge & Burnham, 1975).

Limited flexibility in terms of resources further constrains innovation efforts in higher education institutions. Slack resources may enable risk-taking investments in new

programs and enhance organizational capabilities to change priorities and objectives (Damanpour, 1987; Hage & Aiken, 1970). More than three-fourths of higher education budgets, however, are allocated to salaries and benefits (Seymour, 1988). High fixed costs in people-intensive organizations delimit resource flexibility, and may condition organizational perspectives toward innovation.

The organizational structures of higher education institutions also impact propensities for innovation. Higher education institutions have been characterized as loosely-coupled organizational systems, where the activities of an academic department are relatively independent from those of other units (Firestone, 1985; Weick, 1976). Communication occurs, predominantly, among faculty members in the same department. Decision-making authorities, particularly in terms of curricular decisions and research foci, are often decentralized to the departmental level (Creswell, Wheeler, Seagren, Egly, & Beyer, 1990; Lincoln, 1986). Communication and coordination across departments or units tends to be limited.

The organizational structure of higher education may facilitate innovations that arise at the departmental level, yet impede innovations that are targeted toward institution-wide change. Technological innovations, for example, are typically discipline-specific alterations in teaching and research processes. Decisions related to technological innovations are often made at the departmental level where faculty input and interest may be highest; as such, their adoption by faculty members may be more likely to occur (Andrews, 1975; Curry, 1992).

Administrative and ancillary innovations, in contrast, tend to be institutional decisions made by higher education managers. Their adoption may be more problematic, and may require substantial involvement by the intended implementers; in this case, faculty members. Building faculty consensus for administrative innovations may be difficult, given faculty orientations toward disciplines rather than institutions (Cohen & Brawer, 1972; Gouldner, 1957; Merton, 1957). Where faculty members identify more strongly with their disciplines than their institutions, interest in and commitment to institutional innovation may be limited (O'Banion, 1997). Faculty rewards and recognition, moreover, are frequently tied to their participation in discipline-specific, rather than institutional innovations (Moneta, 1997).

The challenge for higher education administrators is to conceptualize and communicate institutional innovations as opportunities for faculty involvement and/or development. The role of the administrator, in this instance, is to create "conditions through which faculty can seek and find satisfactions by the efficient exercise of their professional responsibilities. Seen as resource providers, administrators are often perceived as capable of expanding the boundaries of faculty opportunity" (Bess, 1988, p. 128). A supportive organizational climate may be deemed a resource and enabling factor in terms of faculty initiative and risk taking. The development of organizational climates supportive of faculty involvement and continuous improvement may condition faculty receptiveness to institutional innovations (Siegel & Kaemmerer, 1978).

Innovation and Community Colleges

Surveys of the historical development of community colleges reveal long-standing traditions of innovative approaches to education. These traditions may be related to the purposes for which community colleges were founded.

The community college itself is an innovation of American origin. Initial development of community colleges was stimulated by the expansion of the number of high school graduates who wished to continue their education, and the inability (or unwillingness) of universities to meet the educational needs of larger, more diverse student populations (Brint & Karabel, 1989). The first community college -- Joliet Junior College in Joliet, Illinois -- was founded in 1901. Its curriculum emphasized basic thinking and learning skills. Other states -- California, Iowa, Kansas, Michigan, Mississippi, Missouri, Texas, and Washington -- established community colleges during the 1910s and 1920s (American Association of Community Colleges, 1995; Dougherty, 1994).

The mission of the early community colleges was essentially egalitarian; that is, to promote equality of educational opportunity. This mission was expanded to include economic development and workforce training, beginning with the Great Depression of the late 1920s and 1930s. Enrollments in low-cost institutions, such as community colleges, tend to increase during periods of economic distress, and community colleges were challenged to meet growing demands for skills training and employment credentialing. Cities and towns began to pressure their community colleges to offer programs that would help them attract scarce employment opportunities. Community

colleges began to establish partnerships with businesses to develop programs that met changing workforce needs (American Association of Community Colleges, 1995).

Marxist critics suggest that the linkage between economic development and community college instruction was motivated by business firms' desire to obtain publicly-subsidized employee training (Bowles & Gintis, 1976; Pincus, 1980). Functionalist advocates argue that the coupling of business concerns with community college missions supports the achievement of social goals and national well being (Cohen & Brawer, 1989; Monroe, 1972). Both perspectives, nonetheless, acknowledge that community colleges are expected to adopt innovations in order to meet the changing needs of their constituencies.

Access to community college education was expanded through passage of the G.I. Bill in 1944. Community colleges played key roles in re-training military service personnel for civilian work. Enrollments doubled between 1944 and 1947, as community colleges served as an enrollment "safety valve" for crowded state universities (Dougherty, 1994).

Community college missions in the late 1940s and 1950s were influenced by the recommendations of the Truman Commission on Higher Education. The report reaffirmed educational access as a major goal of higher education. It also recommended the establishment of more community colleges, and emphasized their role in terms of providing public services and recreational programs to meet community needs. Community outreach, including educational enrichment programs, adult education, and

special non-credit courses, became a prominent part of community colleges' missions (Broussal, 1984; Mellander, 1994).

The 1960s and early 1970s were a period of tremendous expansion for community colleges. By the late 1960s, community colleges were being established at the rate of one per week (Cross, 1997). Enrollments more than tripled between 1965 and 1975, as the post-World War II Baby Boom generation began to seek postsecondary education (American Association of Community Colleges, 1995). The influx of students served as an impetus for innovation. Many students were underprepared for college-level study, and the need for new remedial programs became evident (Roueche, 1968; Tillery, 1970).

Expanded access to higher education triggered the first wave of community college innovation. The second wave of innovation has been associated with concerns about quality and retention. National reports criticized the general state of education in the United States (National Commission on Excellence in Education, 1983), and concerns were raised about the quality of undergraduate instruction (Wingspread Group on Higher Education, 1993). Levels of academic preparedness declined during the 1980s (Roueche & Roueche, 1993), and community colleges experienced higher rates of attrition than four-year institutions (Anderson, 1981; Astin, 1975; Tinto, 1994). Community college students are "disproportionately working class, nonwhite, or academically weak, and these are the very students most likely to drop out" (Dougherty, 1994).

Innovations associated with quality improvement and retention in community colleges proliferated during the 1980s and 1990s (O'Banion, 1997), and include computer-assisted instruction (Roark, 1985), learning communities (Tinto & Russo,

1994), total quality instruction (Cooke, 1994), and collaborative learning programs (Freemyer, Ajamian, & Lecuyer, 1995).

Technological changes in business and industry constitute a third impetus for innovation in community college instruction. Many firms require computer-literate employees. Given high levels of change in hardware and software, community colleges face challenges in terms of maintaining academic programs and facilities that are technologically current (Kurzet, 1997). Through their rapid responses to technological change, however, community colleges have earned a reputation as the most innovative sector of higher education (Cross, 1997). Applications of computer technology, including distance education and Internet-based instruction, have been more extensive in community colleges than among four-year institutions (Green, 1996).

Research Perspectives on Innovation

Organizational change and innovation have been examined in terms of higher education in general, and community colleges in particular. The focus of this chapter now shifts to related research on innovation and organizational support for innovation. Innovation research may be categorized in terms of four frameworks: diffusion of innovations, planned innovation, conflict, and complex organizations (Dill & Friedman, 1979).

Diffusion of Innovations

The diffusion framework addresses issues related to how innovations "spread" through a social system. Ryan and Gross (1943), for example, studied efforts by county agricultural extension agents to encourage farmers to use a new hybrid seed corn. The study identified factors that made adoption of the innovation more likely. Researchers who utilize the diffusion framework identify an innovation and track its adoption over time. Mort (1946), in a study of public school innovation, found that innovation diffusion followed an S-shaped curve. Initially, only a few schools would adopt an innovation, then a large majority would implement the idea and, finally, a small group of late adopting schools would innovate.

The acceptance or rejection of an innovation is frequently related to characteristics of the innovation itself. Rogers's research (1962; Rogers & Shoemaker, 1971) identified five characteristics of an innovation that tend to improve the likelihood of its adoption: 1) perceived advantage, the extent to which potential adopters view the innovation as an improvement over previous ideas; 2) compatibility, the extent to which potential adopters perceive the innovation as consistent with existing values and past experiences; 3) accessibility, the ease with which the innovation may be understood; 4) divisibility, the degree to which the innovation may be tried on a limited or incremental basis; and 5) communicability, the degree to which the innovation may be easily described and visualized.

Related higher education research appears to support Rogers's findings. Pugh (1974) found that teaching recommendations were more likely to be adopted when they

were easy to implement, when they could be adopted on a trial basis, and when they were readily understood. Similarly, Winstead (1982) found a relationship between innovation adoption and the communicability of the innovation; where those involved in the change process understood the potential effects of the innovation, implementation was more likely to be successful.

Characteristics of the adopting unit may also be associated with innovation acceptance or rejection. Some studies have used the organization as the unit of analysis. Jones (1994) found that community colleges that were open to input from the community were more innovative than those characterized as relatively closed systems. Nelson (1981) found that acceptance of a new affirmative action plan in a community college was associated with a number of organizational climate characteristics, including open communication and participatory management.

Other researchers have studied individual characteristics as factors related to innovation acceptance. Evans and Leppman (1968) found that cosmopolitan faculty members were more likely to utilize instructional television than faculty with local orientations. Faculty who identified more strongly with their disciplines than with their institutions were also more likely to seek educational development grants for instructional innovations (Sachs, 1976). Higher levels of motivation, information seeking, and social integration also appear to distinguish faculty innovators from non-innovators (Davis, Strand, Alexander, & Hussain, 1982; Sachs, 1976).

Demographic characteristics appear to be less effective predictors of innovation acceptance than adopter attitudes, values, and orientations. Baldridge and Burnham

(1975) found that innovation leaders "were a little older, more often males, and had slightly more education, but the differences were small and not statistically significant" (p. 167). Similarly, employment status did not differentiate community college faculty in terms of their use of new theory; part-time faculty utilized new theories as extensively as full-time faculty (Wagner, 1994).

Diffusion research suggests that characteristics of innovations, organizations, and aggregates of individuals may influence the extent to which institutional climates are supportive of innovation. Related findings may inform administrative efforts to generate climates favorable to the adoption of innovations.

Planned Innovation

The planned innovation framework addresses issues associated with organizational strategy. Planned innovation may be conceptualized as intentional organizational efforts to improve processes through the implementation of new ideas based on scientific knowledge (Bennis, Benne, & Chin, 1961). The knowledge may be based on institutional research, accreditation reports, or program reviews, in the case of higher education institutions (Bogue & Saunders, 1992).

Research designs that apply the planned innovation framework typically rely on field experiments or case study methodologies (Dill & Friedman, 1979). Studies focus on the relationship between the client system (the organization adopting the innovation) and a change agent (an individual who facilitates the innovation process). Change agents may be external to the organization (Lippitt, Watson, & Westley, 1958); for example, an

organization may hire a consultant to evaluate processes and suggest new procedures. In other instances, the change agent may be a member of the organization (Bennis, Benne, & Chin, 1961). Faculty, administrators, staff, and students are potential internal change agents in colleges and universities.

Change agents perform a number of roles in organizations (Havelock & Havelock, 1973). They identify problems, ask questions, stimulate ideas, suggest alternatives, manage conflicts, and monitor progress toward institutional goals (Winstead, 1982). Planned innovation research suggests that change agents are more likely to fulfill these functions when they are able generate commitment to an innovation among members of the client organization (Bennis, 1966).

Commitment is unlikely to emerge through coercion. It is gained, more often, through building relationships and trust between the change agent and clients (Briggs, 1997). Trust may be enhanced when change agents and clients share similar values and beliefs. Rogers and Shoemaker (1971) found a positive correlation between change agent success and degree of value similarity between change agents and clients.

Effective change agent-client relationships may also require extensive interpersonal communication (Peters & McKenna, 1977). Gross, Giacquinta, and Berstein (1971) suggested that establishing effective feedback mechanisms was a critical determinant of innovation adoption among elementary school teachers. A study by Quinlan (1995) of community college chief executive officers identified participatory decision making and inclusive communication as critical factors in terms of successful management of the innovation process.

Change agents attempt to alter organizational climates and individual orientations toward innovation (Lewin, 1958). Planned innovation research suggests a number of critical factors related to the development of institutional conditions favorable to innovation and creative functioning.

Conflict

The conflict framework utilizes a political model of organizations (Deetz, 1994; Mumby, 1988). Organizational politics refers to the use of power to obtain preferred outcomes in situations where two or more groups disagree (Pfeffer, 1981). Disagreements arise in the course of defining organizational ideologies, establishing institutional priorities, and allocating scarce resources (Levine, 1980; Lindquist, 1974). Conflict emerges between interest groups favoring innovation and those that seek to protect the status quo (Coser, 1956; Simmel, 1955).

Baldridge (1971), in a study of New York University, examined the process through which conflict emerges. Internal and external pressures for innovation arise and challenge traditional modus operandi and established behavioral repertoires. This is followed by a period of interest group articulation, as collectivities of individuals align themselves in favor of, or in opposition to, the proposed innovation. Finally, the innovation is addressed in a legislative phase, as the disputing parties engage in conflict management and negotiation tactics. Higher education administrators play a brokerage role during the legislative phase of conflict (Conrad, 1978); they mediate differences among interest groups, and facilitate the development of consensus solutions.

While conflict is often a response to innovation, innovations themselves may emerge through conflict. Dahrendorf (1958) suggested that inequalities among groups in terms of power, resources, and status may engender conflicts that yield social change. Conflict may enable the ascendancy of new leadership and new ideas, as entrenched officials and procedures are displaced by emergent interest groups (Mintzberg, 1985).

The functions of conflict may extend to organizational decision making, as conflicts tend to elicit extensive examination and evaluation of assumptions, goals, and priorities (Deutsch, 1973; Scott & Mitchell, 1972). Higher levels of critical thinking may be evident where conflict is expressed openly (Donohue, 1981). Conflict may enable divergent thinking and analysis (Basadur, 1995), and improve the quality of organizational decisions (Mintzberg, 1985).

The conflict framework suggests that collectivities of individuals frequently express differing perspectives toward innovation. Perceptions of organizational climate are not uniform. They vary in terms of the power, status, and ideologies of interest groups within the organization. Conflict research suggests a need for consideration of organizational members' perceptions of institutional support for innovation.

Complex Organizations

Researchers who utilize the complex organizations framework examine relationships between innovation and organizational characteristics, such as size, complexity, formalization, centralization, and age of the organization. Variance in the

rate of innovation is accounted for by variance in structural variables (Dill & Friedman, 1979).

Hage and Aiken (1970) explored the relationships between rate of innovation and seven organizational variables: 1) complexity, the degree of occupational specialization; 2) centralization, the extent to which decision-making authority is concentrated among a few individuals; 3) formalization, the degree of specificity of rules and procedures; 4) stratification, the extent to which members vary in the rewards (pay and prestige) that they receive; 5) production volume, the degree to which the organization focuses on producing a large quantity of products or services; 6) efficiency, the extent of organizational efforts to conserve resources; and 7) job satisfaction. Hage and Aiken found positive associations with innovation for only two variables -- complexity and job satisfaction. Negative correlations with innovation were found for the other variables.

Baldridge and Burnham (1975) examined the rate of innovation adoption among Illinois school districts. Large, complex school organizations adopted more innovations than small, less specialized schools. Size and complexity accounted for the largest proportion of variance in innovation among the variables included in the study.

Damanpour (1996) suggested that the size-innovation and complexity-innovation relationships vary in terms of environmental uncertainty. Meta-analytic findings showed that correlations between size and innovation and complexity and innovation were larger under conditions of high environmental uncertainty. Environmental uncertainty may function as a catalyst for innovation, as organizations seek to accommodate changing market factors.

The complex organizations framework has been prominent among higher education studies of innovation. Blau (1973), for example, found a positive correlation between the number of new departments added to institutions and the extent to which institutional authority was decentralized. Where decision-making authorities were dispersed, organizational members experienced higher levels of autonomy, and were more willing to adopt new ideas and programs. Blau also found a negative relationship between institutional age and innovation. Older institutions were less innovative than colleges and universities founded more recently. Higher-level adherence to institutional traditions and rituals among older institutions may account for the negative correlation between age and innovation.

Howard (1981), in a study of innovation at university libraries, offered partial support for Hage and Aiken's model. Library innovation was positively associated with complexity, and negatively associated with centralization and stratification. Other higher education researchers posit a relationship between work autonomy and innovation. Nelson (1990) found that innovative community colleges provide employees with freedom and control over work processes; here, management systems support, recognize, and reward creative functioning.

Interpretations of findings from complex organization studies, however, are seldom straightforward. Seymour (1988), in a review of innovation research, found that study findings were often contradictory. Formalization, for example, may inhibit creativity and risk taking, as work repertoires are delimited by codified expectations. Hage and Aiken (1967) and Kahn, Wolfe, Snoek, and Rosenthal (1964) found negative

correlations between formalization and innovation. Delaney, Jarley, and Fiorito (1996), however, found a positive association between formalization and innovation in labor unions. Formalization may reduce organizational ambiguity by specifying work roles and responsibilities, and by establishing formal communication channels throughout organizations (Lindquist, 1978). Reductions in organizational ambiguity may mediate levels of resistance to change, as members come to understand how innovations are related to their work repertoires.

One explanation for contradictory findings is that organizational variables may have both positive and negative effects at different stages in the innovation process (Zaltman, Duncan, & Holbek, 1973). Rule adherence in formalized organizations may restrain creativity, and impede the initiation stage of innovation. Implementation of innovations, however, may be facilitated through the use of formal communication networks.

Studies examining organizational complexity have also yielded conflicting findings. Baldridge and Burnham (1975) found a positive association between complexity (the number of programs and positions in a school) and the number of innovations adopted. Complexity increases the number of specialists in an organization. More diverse perspectives, values, and knowledge bases may be applied to problem-solving efforts in highly specialized organizations (Hage & Aiken, 1970). In diverse organizations, a climate develops that encourages exploration, risk taking, and creative thinking (Seymour, 1988). Complexity, then, may contribute to the initiation of innovations.

Blau and McKinley (1979), however, found a negative correlation between innovation and complexity (the number of organizational divisions/specialties), when organizational size was held constant. Collaboration and social integration may be impaired by high levels of complexity. Occupational specialization may constitute a barrier to communication, making prioritization and coordination of innovations difficult (Blau & McKinley, 1979). Complexity, then, may impede the implementation of innovations.

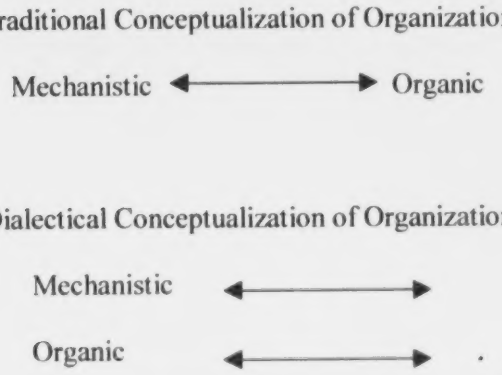
Conversely, centralization may constrain initiation and support implementation. In centralized organizations, decision-making authorities are allocated to a relatively small number of individuals who may use their veto power to maintain the status quo (Thompson, 1969). "With the implementation of innovation, however, more strict lines of authority can help reduce potential conflict and ambiguity" (Seymour, 1988, p. 9).

A review of complex organizations studies suggests a managerial paradox: organizational variables that appear to support initiation can also stifle implementation, and variables that foster implementation may impede initiation. Traditional conceptualizations of organizational systems suggest inherent difficulties in terms of managing both initiation and implementation of innovations (Hurst, 1986). Organizations, it is posited, will be more successful with either initiation or implementation based on their positions along a continuum ranging from mechanistic to organic (Burns & Stalker, 1961). Organic organizations foster creativity necessary for initiating innovations. Mechanistic organizations provide the stability required for implementation. Dialectical conceptualizations of organizations, alternatively, suggest

that organizations may maintain apparent contradictions; they may be both open and free for initiation, and structured and specified for implementation (Spender & Kessler, 1995).

Hurst (1986) suggested that traditional managerial approaches and theories are based on either-or dichotomies; organizations are either structured or unstructured, centralized or decentralized, formal or informal. Neither pole of a dichotomy, nor any point along a hypothesized continuum, however, may adequately support innovation and creative functioning in work organizations. Some locations along the mechanistic-organic continuum will favor initiation, others will support implementation, but no point can successfully integrate requisites for both. Alternatively, organizations may develop structures or behavioral patterns that support both initiation and implementation of innovations (Figure 1). Zaltman, Duncan, and Holbek (1973) were first to suggest that organizations can develop differentiated regions; some of which were to be high in complexity to initiate new ideas, and others were to be low in complexity in order to implement them. More recently, Burns and Stalker (1994), in a revised edition of their classic text on innovation, suggested that organizations frequently operate with a management system that is both mechanistic and organic; both structured and flexible. Rather than consider mechanistic and organic management as two poles of a continuum, researchers concerned with organizational innovation may utilize mechanistic and organic management as distinct constructs; both of which may mediate levels of organizational support for innovation and creative functioning among members.

Figure 1. Conceptualizations of Organization



Brown and Eisenhardt (1997) offered empirical support for the need to maintain organizational contradictions in order to engender innovation. They examined product innovation in the computer software industry. Successful product innovation was found in organizations characterized by both well-specified roles and responsibilities and extensive autonomy and design freedom. Successful innovation may require operating with both mechanistic and organic forms of management. "This combination is neither so rigid as to control the process nor so chaotic that the process falls apart" (Brown & Eisenhardt, 1997, p. 3).

This dialectical contradiction may be maintained in organizations characterized by extensive communication and high levels of work autonomy (Brown & Eisenhardt, 1997; Burns & Stalker, 1994; Spender & Kessler, 1995). Mechanistic forms of management require extensive organizational communication networks that link members' activities and provide a common frame of reference for innovative projects and

processes. Organic forms of management suggest that organizational members are delegated high levels of discretion and self-determination in their work processes, schedules, and procedures.

Communication and Innovation

Organizations have been viewed as elaborate systems of communication (Deetz, 1992; Jablin, 1987; Monge & Eisenberg, 1987). Patterns of communication that develop between individuals, individuals and groups, and groups and other groups constitute the social structure of an organization (Fisher & Ellis, 1990). Formal and informal communication networks enable organizational members to enact work processes and define procedures in socially-constructed institutions (Poole, Seibold, & McPhee, 1996). Work in higher education institutions, for example, is planned, implemented, and evaluated through communication (Bensimon & Neumann, 1993; Cranton, 1997).

The social structure of an organization -- its communication processes and patterns -- influences the innovation process (Bach, 1989; Ibarra, 1993). The effectiveness and credibility of organizational and interpersonal communication may determine the extent to which innovations are diffused through an organization (Albrecht & Ropp, 1984). Effective, credible communication is frequently associated with openness and trust among organizational members. Openness and trust can facilitate higher levels of idea sharing and risk taking in interpersonal relationships (Altman & Taylor, 1973; Larson & LaFasto, 1989), and, in turn, mediate individual receptivity to innovation.

Brown and Eisenhardt (1997) found that innovative computer software firms engaged in more extensive communication during product development than less successful competitors. Damanpour's (1991) meta-analysis of innovation research showed that increased information flow improved innovation performance. A number of studies of higher education institutions have identified open communication as an important variable in the innovation process; one which may determine, in part, initiation and implementation effectiveness (Curry, 1992; Nelson, 1990; Neumann, 1991).

Related research suggests a number of potential explanations for the association between communication and innovation. First, communication may function as a coordinating mechanism, linking individuals and organizational units and enabling collaboration on new projects (Donnellon, 1996). Second, communication may serve as a feedback mechanism, providing individuals timely information about the performance of innovations (Brown & Eisenhardt, 1997). Finally, communication is a sense-making mechanism, which provides organizational members with a common frame of reference from which to interpret the meaning of innovations (Weick, 1993).

Autonomy and Innovation

Dimensions of work autonomy have also been identified as important components in fostering creativity and implementing innovations in organizations where the primary technology is professionalized. Members of a profession develop specialized knowledge bases, which are pertinent to specific organizational or social tasks. Where knowledge is particularized, competent professional performance cannot be judged by laypersons

(Abbott, 1988; Pavalko, 1988). Professional groups, in turn, are seldom constrained by demands from clients or from the organizations for which they work (Forsyth & Danisiewicz, 1985). Autonomy enables professionals to improvise and engage in divergent thinking (Brown & Eisenhardt, 1997).

Academic work is highly particularized. Faculty research and teaching foci are targeted toward narrowly-defined content areas (Clark, 1996). Faculty members expect to determine their own work methods, contribute to decisions regarding the scheduling of their work, and have their work evaluated by peers. Autonomy and related organizational structures such as peer review, tenure, and shared governance arrangements are valued components of faculty cultures (Austin, 1990).

Positive associations between work autonomy and rates of innovation in higher education institutions (Blau, 1973; Howard, 1981) suggest that faculty members may be more willing to devise and implement new ideas and programs where they retain substantial control over their work processes and procedures. Autonomous work may contribute to satisfaction of higher-order needs for achievement and accomplishment (Turner & Lawrence, 1965). Receptivity toward new ideas may, in turn, be higher where faculty members perceive linkages between innovation and intrinsic rewards of work. Work autonomy appears to facilitate the development of organizational climates that support individual risk taking and foster commitment to institutional renewal.

Organizational Climate and Support for Innovation

Climate, as an organizational construct, may be distinguished from conceptualizations of organizational culture. An organization's culture is defined by the deeply held values, assumptions, beliefs, and ideologies of its members. Organizational climate refers to members' perceptions of the current patterns of interaction in their organizations. It is defined by the attitudes and feelings of members toward the organization. While culture is embedded and enduring, climate is variable and malleable. "One interesting analogy suggests that culture is the meteorological zone in which one lives (tropical, temperate, or arctic) and climate is the daily weather patterns" (Peterson & Spencer, 1990, p. 8).

Perceptions of organizational climate tend to condition members' attitudes and behaviors in work environments (Litwin & Stinger, 1968). Eisenberger, Fasolo, and Davis-LaMastro (1990), in a study of six occupational groups, found a positive association between members' perception of being emotionally supported -- valued and cared about -- by the organization and higher levels of conscientiousness, involvement, and innovation. Jansen and Chandler (1994) examined relationships between perceptions of organizational climate and hospital employees' attitudes and behaviors. Employees who perceived that they received support for innovative activities reported substantially less role conflict and higher levels of involvement and satisfaction with the organization.

Organizational climate may be conceptualized as a number of measurable organizational properties that are perceived by employees, and which vary among

organizational types (Litwin & Stinger, 1968). Climate may be a useful construct for identifying innovative organizations (James & Jones, 1974).

Dimensions of Organizational Climate and Innovation

Innovative organizations may differ from non-innovative organizations in terms of dimensions of climate. Siegel and Kaemmerer (1978) identified five dimensions of organizational climate that are theoretically linked to innovative activity in work organizations.

Leadership

Leadership may be defined as "an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes" (Rost, 1991, p. 102). Certain types of leader-follower relationships may be more conducive to innovation than others. Innovation may be more likely to occur when leaders diffuse power throughout the organization (Guetzkow, 1965). Here, leaders include others in organizational decision-making processes. High level involvement by organizational members in decision making may increase the number of ideas produced, may engender initiation of innovations, and subsequently increase the level of commitment to the agreed upon solution, thus facilitating implementation.

Organizational support for innovation may also be linked to leaders' expectations for the organization and for individual performance (Siegel & Kaemmerer, 1978). Leaders enact critical roles in shaping organizational climates. They identify priorities,

define responsibilities, and assess performance. Likert (1961) suggested that effective leaders set high expectations and support the personal development of organizational members. Members' perceptions of organizational leadership may mediate individual levels of readiness to devise, adopt, and enact new ideas and programs. Leaders who demonstrate openness and risk-taking, and support individuality and creativity, may facilitate the development of a climate favorable toward innovation (Young & Smith, 1988).

Ownership

Feelings of ownership develop when individuals perceive that they have had a part in the origination and development of the ideas, processes, and procedures with which they work. Organizational members perceive congruence between individual and organizational goals. They are likely to identify themselves with the organization and demonstrate higher levels of commitment to their jobs (Humphrey, 1987).

Pride of idea ownership may constitute a motivating force, which increases productivity and innovation (Jelinek, 1979). Motivation increases when potential benefits of action appear to increasingly outweigh potential costs (Lawler, 1973). Members may experience less fear of the potential costs of innovation when they feel that they have a measure of control over organizational decisions; they feel more secure in their actions. Ownership may enhance levels of confidence and facilitate efforts to search for new ideas and engage in risk-taking behaviors (Siegel & Kaemmerer, 1978).

Feelings of ownership, moreover, may reduce the amount of resistance to change. Resistance is often the result of individuals' fear of change. Fear of change can be reduced when members are involved in planning for innovation (Miller, 1970). High levels of ownership of organizational strategies may enable members to view innovations as opportunities rather than threats.

Norms for Diversity

Organizational preferences for conformity constitute major constraints on innovation and creative functioning (Basadur, 1995). Janis (1982), in a study of U.S. government policy making, identified tendencies toward "groupthink" which constrained the appropriateness and effectiveness of related decisions. Assumptions, methods, and ways of thinking remained unchallenged. Alternative approaches and new definitions of problems were not considered. Organizational norms pressured members to suppress new ideas and conform to dominant viewpoints.

Norms that favor diversity, in contrast, enhance innovation by encouraging creativity and divergent thinking (Bensimon & Neumann, 1993). Few ideas are viewed as deviant, and members feel free to express their thoughts and opinions without fear of reprisal (Siegel & Kaemmerer, 1978).

Diversity may improve organizational performance. Innovation effectiveness may be enhanced when diverse knowledge bases and viewpoints are brought to bear on a problem. Hirokawa (1988) suggested that extensive problem analysis from multiple perspectives can improve the quality of group decisions. Leaders in innovative

organizations often encourage members to use a number of approaches to solve the same problem (Siegel & Kaemmerer, 1978). Here, higher numbers of potential solutions are considered, increasing the likelihood that an appropriate solution will be found (Basadur, 1995).

Continuous Development

Change in innovative organizations is continuous, rather than episodic (Brown & Eisenhardt, 1997). Members of innovative organizations continually search for new ideas and strategies. The organization encourages individuals to question their assumptions, redefine problems, and identify novel solutions.

Members of such organizations devote considerable attention to the innovation process. Continuous quality improvement (CQI) and total quality management (TQM) strategies suggest process reforms that assertedly enhance levels of creativity, commitment, and performance (Crosby, 1984; Deming, 1986; Milakovich, 1995). Lewis and Smith (1994), for example, described TQM at Oregon State University as "a process of shared creativity" (p. 121). The university was committed to empowering employees to search for innovative solutions. The goal was to continuously improve services for internal and external customers. On-going attention to process improvement may facilitate the development of organizational climates conducive to innovation and related information-gathering behaviors.

Consistency

Siegel and Kaemmerer (1978) contended that "the way in which something is accomplished can have immediate and unintended consequences that may conflict with the objective of the activity, as when a parent attempts to teach a child not to strike others by spanking him" (p. 555). Organizational members may be more receptive to new ideas when they perceive goodness-of-fit between means and ends (Colarelli & Siegel, 1966). Members of innovative organizations may perceive a consistency between organizational processes and desired goals/outcomes. Here, processes support idea generation and implementation. Managers "talk the talk, and walk the walk." They encourage creativity, and they support it with appropriate resources.

Research on Support for Innovation

Siegel and Kaemmerer (1978) translated the five climate dimensions into a self-report instrument, which measures perceived support for innovation in organizations. The instrument was administered to students and teachers at six traditional and two innovative secondary schools. Schools were differentiated by analysis of mission statements. The stated primary goal of the traditional schools was to prepare students for college. The goals of the innovative schools included fostering creativity and encouraging openness to speculation and exploration. Teachers and students in the innovative schools reported significantly higher levels of perceived support for innovation than respondents in the traditional schools. Differences were significant in terms of each of the five climate dimensions.

Brown (1985) utilized Siegel and Kaemmerer's (1978) instrument to examine the relationship between perceived support for innovation and job satisfaction. The study population included 185 employees from two organizations -- 60 from a hospital-based medical center and 125 from a research and development division. Hypothesis tests revealed a significant, positive correlation between climate for innovation and job satisfaction. Study findings also suggested associations between climate for innovation and role conflict and role ambiguity. Respondents who perceived their organizations as supportive of innovation also reported higher levels of role conflict and role ambiguity. One interpretation of this finding suggests that organizational members who perceived an innovative climate felt challenged by their work and were empowered to redefine work responsibilities (Brown, 1985).

Orpen (1990) measured perceived support for innovation among employees from engineering firms. Significant, positive correlations were obtained between support for innovation and job satisfaction, work motivation, and job involvement. Findings suggest that perceived support for innovation is associated with a number of performance-related variables in work organizations.

A study of 514 employees of a large electronics corporation (Henkin & Davis, 1991) revealed significant differences in perceptions of organizational support for innovation in terms of individual characteristics. Older, more highly educated employees perceived lower levels of support for innovation. Males consistently perceived more support for innovation than females. Support for innovation appears to constitute a measure of psychological climate, which may vary in terms of the age, gender, and

educational level of organizational members. Findings suggest that personal experiences and backgrounds affect perceptions of work environments.

Henkin, Davis, and Singleton (1993), in a study of nursing department faculty, found that perceptions of support for innovation varied by individual characteristics; though, the direction of the variance differed from a previous study (Henkin & Davis, 1991). Older, more highly educated faculty members perceived higher levels of support for innovation. Faculty with full-time appointments tended to perceive more support for innovation than those with part-time appointments. Nursing school faculty, moreover, perceived higher levels of support for innovation than nurse practitioners. "Differences in respondents' decisional latitude and autonomy, and the range of legal and organizational strictures imposed on practicing nurses in comparison to nursing school faculty may condition perceptions and attitudes" (Henkin, Davis, & Singleton, 1993, p. 230).

Young (1993) studied perceived support for innovation among employees at a large aerospace corporation. Perceptions of support for innovation did not differ significantly between managers and non-managers. Length of service in the organization did not appear to be a factor in terms of individual perceptions of support for innovation. Employees aged 55 or over perceived less support for diverse thinking (norms for diversity scale) than younger employees. Findings appear to suggest a need for staff development opportunities for older employees who perceive organizational climates as less supportive of their contributions to innovation (Young, 1993).

Researchers have also utilized the Work Environment Innovation Subscale (Moos & Insel, 1981; WEIS) in studies of organizational support for innovation. Hershberger, Lichtenstein, and Knox (1994) found a positive association between high scores on the WEIS and job satisfaction. High scores on the WEIS may also be linked to feelings of personal accomplishment (Turnipseed, 1994).

Support for Innovation in Learning Organizations

Organizations that support innovation may be conceptualized as learning organizations (Argyris, 1982; Mai, 1996; Senge, 1990). Members of learning organizations engage in continuous self-study and self-regulation in order to identify processes or procedures that impede performance. Organizational learning occurs when members respond to an internal or external change, detect and correct errors in organizational practice, and embed the results of their study in the shared memory of the organization (Argyris & Schon, 1978). Learning organizations constantly engage in efforts to search for new ideas and innovations with potential to improve organizational performance.

Learning organizations emphasize teamwork and "team thinking" (Senge, 1990). Team members build a shared vision of organizational goals, which can foster high levels of commitment and involvement in change processes. Team vision statements emerge through communication and provide the structure necessary to guide members' activities toward identified organizational priorities.

Learning organizations may be characterized by both well-specified communication structures and organizational processes in which members retain high levels of autonomy. Innovations in learning organizations emerge through team discussion and collaborative problem analysis. Team members have "high freedom of choice, internal commitment, and [proclivities toward] risk taking" (Argyris, 1982, p. 102). Emphases on self-assessment and self-enhancement suggest that members of learning organizations are able to determine, in large part, the methods, schedules, and procedures of their work.

Research on learning organizations has been extensive in the literature on for-profit organizations (Fichman & Kemerer, 1997; Jelinek, 1979; Sias, Kramer, & Jenkins, 1997; Starkey, 1998). Recently, higher education scholars have suggested that colleges and universities consider dimensions of learning organizations that may be utilized in institutional change efforts (Clark, 1996; Curry, 1992; O'Banion, 1997). Work climates associated with learning organizations may support creativity and facilitate the adoption and implementation of new ideas and programs.

Summary

Inevitable variations in the social, political, and economic environments of community colleges suggest the importance of organizational readiness for continuous change. The adoption and implementation of innovations may enable appropriate responses to external expectations for institutions. Innovation in higher education institutions, however, is a difficult process. Decentralized departmental structures may

facilitate discipline-based technological innovations, yet impede administrative innovations related to institution-wide goals and priorities. Faculty perceptions of institutional support for innovation may condition their receptivity to new ideas and encourage risk-taking behaviors associated with creative functioning.

Research related to innovation in higher education institutions was reviewed in terms of four frameworks. The diffusion of innovations framework suggests a relationship between organizational climate and receptiveness to innovation. Research on planned innovation identifies change agents as individuals capable of altering organizational climates so that they are more favorable toward innovation. Conflict research emphasizes the need to consider how organizational members differ in their perceptions of organizational climate. Finally, the complex organizations framework suggests means to facilitate the development of climates supportive of innovation. Specifically, communication and autonomy were identified as variables that can provide the structure and freedom necessary for successful innovation.

Studies of perceived support for innovation suggest that innovative organizations may be differentiated from non-innovative organizations in terms of dimensions of organizational climate. Organizational members who perceive high levels of support for innovation may also report high levels of job satisfaction, work motivation, and job involvement. Such responses may be more likely among members of learning organizations; institutions that emphasize continual self-study and extensive collaboration.

CHAPTER III

STUDY DESIGN AND METHODOLOGY

Study Design and Data Collection

This study examines faculty members' perceptions of support for innovation at a large, urban community college with an international reputation for developing innovative educational programs. Perceptions of support for innovation may enable the introduction and implementation of environmentally-responsive programs and services, which facilitate organizational renewal and fulfill institutional missions.

Research questions involving perceived support for innovation, respondent characteristics, departmental setting, and organizational climate variables were developed. An ex post facto survey research design (Kerlinger, 1986) was employed in tests of hypotheses related to perceived support for innovation. A questionnaire was mailed to all members of the study population. Three organizational measures -- support for innovation, work autonomy, and communication openness -- were included in the questionnaire. Self-reports in terms of demographic, work experience, and departmental setting variables were obtained through the questionnaire. A list of independent and dependent variables is included in Table 1.

Table 1. Study Variables.

Dependent Variables
Siegel Scale of Support for Innovation
Total Score
Leadership Scale
Ownership Scale
Norms for Diversity Scale
Continuous Development Scale
Consistency Scale
Independent Variables
Communication Openness
Work Autonomy
Total Score
Methods Scale
Schedule Scale
Evaluation Scale
Individual Variables
Gender
Age
Education
Racial Identification
Years in Profession
Years in Current Position
Employment Status (full-time or part-time)
Intent-to-Stay
Departmental Variables
Academic Field
Degree Program

Study Population

The study population includes all full- and part-time faculty members employed by a large, urban community college. The institution was selected based on its reputational standing as an innovator in community college education. Researchers and practitioners in the field of community college education consistently identify this institution as an international leader in developing and implementing new educational programs (Dougherty, 1994; Goodwin, 1988; Lever, 1993; Lever-Duffy, Lemke, & Johnson, 1996; O'Banion, 1997).

The college began experimenting with instructional computing in the early 1970s, and was one of the first community colleges to utilize instructional television as part of its regular academic curriculum (Goodwin, 1988; Roark, 1985). Administrators developed a computerized advising system, which generates course recommendations based on students' goals, and monitors how well they are meeting degree requirements. This system has been cited frequently as a national model for academic advising (Dougherty, 1994). The institution's commitment to teaching and learning was exemplified in the mid-1980s when the college began a program to endow 100 distinguished teaching chairs (O'Banion, 1997). The college developed an innovative honors program, and was the first two-year college to gain a seat on the National Collegiate Honors Council Executive Committee (Goodwin, 1988). The institution initiated a number of partnerships with local businesses, including centers for corporate training, business consulting, and high technology. The college also operates a nationally

recognized model program for worker retraining with special foci on single parents and displaced homemakers.

The college belongs to the League for Innovation in the Community College -- an association of 20 community colleges in North America, which disseminates and promotes the use of new teaching and learning techniques (Hall & Petrie, 1987). Membership in the League is by invitation only, and the number of member institutions remains small in order to insure an effective working group of colleges (Goodwin, 1988). The League sponsors conferences, publications, and projects that address issues related to curriculum, instructional design, and computer technology. The study of faculty perceptions of support for innovation is particularly appropriate in this setting, given the institution's espoused commitment to new methods and techniques.

Measures

Three measures were utilized to test research hypotheses related to organizational climate and innovation. The Siegel Scale of Support for Innovation (Siegel & Kaemmerer, 1978) measures the dependent variable -- perceived organizational support for innovation -- in this study. Communication openness and work autonomy may mediate perceptions of organizational support for innovation (Blau, 1973; Brown & Eisenhardt, 1997; Burns & Stalker, 1994; Damanpour, 1991; Rogers, 1983). Selected measures include the openness sub-scale of the O'Reilly and Roberts (1976) communication instrument, and Breaugh's (1985) work autonomy scale. Communication openness and work autonomy serve as independent variables in this study.

Siegel Scale of Support for Innovation (SSSI)

The Siegel Scale of Support for Innovation (SSSI) is a 61-item, self-report instrument. The Likert-type response continuum ranges from 1=disagree strongly, 2=disagree moderately, 3=disagree slightly, 4=agree slightly, 5=agree moderately, to 6=agree strongly. Each item corresponds with one of five factors -- leadership, ownership, norms for diversity, continuous development, and consistency -- identified as dimensions of organizational climate that are characteristic of innovative organizations. Scores on the five dimensions are summed to yield a total score.

Several studies offer support for the validity and reliability of the instrument. Siegel and Kaemmerer (1978) found that the instrument successfully differentiated traditional and innovative schools. Six traditional and two innovative schools were identified through examination of school mission statements. Students (N=1813) and teachers (N=157) in the selected schools completed the SSSI. Respondents from the innovative schools scored higher on each of the five SSSI dimensions than respondents from the traditional schools. All differences were significant at the .001 level. Split-half reliability coefficients obtained from the data ranged from .86 to .94. These coefficients support the assertion of internal consistency of the SSSI.

Brown's (1985) study of the relationship between support for innovation and job satisfaction provides additional support for the validity and reliability of the SSSI. Findings indicated that the SSSI was a more powerful predictor of job satisfaction than the more widely studied Work Environment Innovation Subscale (Moos & Insel, 1981; WEIS). Tests of reliability indicate that the SSSI may be a more accurate measure of

organizational support for innovation than the WEIS. Cronbach's alpha coefficients for the WEIS ranged from .52 (Hershberger, Lichtenstein, & Knox, 1994) to .80 (Abraham & Foley, 1984). Brown (1985) obtained a Cronbach's alpha coefficient (.96) for the SSSI, which indicates a high level of measurement accuracy.

Orpen (1990) utilized a consensual reputation method to identify innovative and non-innovative engineering firms. Respondents from the innovative firms obtained significantly higher scores ($p<.01$) for leadership, ownership, norms for diversity, and continuous development. Significant correlations were found between the SSSI and job satisfaction ($p<.01$), work motivation ($p<.05$), and job involvement ($p<.05$). Findings suggest that the SSSI may have construct validity beyond the educational setting in which it was developed.

Additional validity information is provided by a study of nursing faculty members and nurse practitioners (Henkin, Davis, & Singleton, 1993). The work environment of nurse practitioners is characterized by limited amounts of decisional autonomy, high rates of turn-over, and a range of legal strictures, which may constrain the implementation of new ideas. Faculty work environments, in contrast, provide substantial discretion in terms of work methods and schedules. The search for new ideas is encouraged by faculty incentive and reward structures (Austin, 1990). Scores on the SSSI differentiated faculty and practitioners in the nursing profession. Faculty perceived higher levels of support for innovation than nurse practitioners. Significant differences ($p<.05$) were found in terms of the leadership, ownership, norms for diversity, and consistency dimensions, as well as the total score.

Communication Openness Sub-scale

The openness sub-scale of O'Reilly and Roberts's (1976) communication measure is a five-item, self-report inventory. The Likert-type response continuum ranges from 1=strongly disagree, 2=moderately disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=moderately agree, to 7=strongly agree. The sub-scale measures the extent to which organizational members feel free to exchange ideas with one another.

Validity data are provided by correlations between self-reports of communication behaviors and perceived openness of communication. O'Reilly and Roberts (1976) found significant, positive correlations between the openness sub-scale and self-reported frequencies of interpersonal contact with co-workers. Extensive and frequent interpersonal interactions at work were associated with perceptions of the organization as supportive of open communication. The reported alpha coefficient (.85) supports O'Reilly and Roberts's (1976) claim of reliability of the measure.

Work Autonomy Scale

A number of instruments measure autonomy as a global construct; that is, without differentiating distinct dimensions of autonomy (Hackman & Oldham, 1975; Iverson & Roy, 1994; Sims, Szilagyi, & Keller, 1976). The utility of a multi-dimensional approach, however, is suggested by the impact of autonomy on different aspects of organizational activity. Chung (1977) claimed that autonomy affects work methods, work pace, and goal setting. Nicholson (1984) suggested that autonomous workers are able to determine the means and ends of work, as well as the timing of processes. The appropriateness of a

multi-dimensional measure of autonomy in studies of higher education institutions is suggested by Baldridge, Curtis, Ecker, and Riley (1973). They defined faculty autonomy as "the ability of professionals to decide work patterns, to actively participate in major academic decision-making, to have work evaluated by professional peers, and to be relatively free of bureaucratic regulations and restrictions" (p. 536).

Breaugh's (1985) multi-dimensional measure of work autonomy -- a nine-item, self-report instrument -- was selected for use in this study. The Likert-type response continuum ranges from 1=strongly disagree, 2=moderately disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=moderately agree, to 7=strongly agree.

Breaugh suggested that autonomy may be measured in terms of three distinct dimensions -- methods, scheduling, and evaluation. Correlation matrices among the three dimensions were modest, ranging from .30 to .42, and suggested that the dimensions measure distinct aspects of autonomy (Breaugh & Becker, 1987). A confirmatory factor analysis based on a large sample (N=9,421) substantiated the measure's three factor structure (Breaugh, 1989).

Breaugh and Becker (1987) utilized an experimental design to examine the extent to which respondents' self-reports of autonomy correspond with experimentally manipulated levels of autonomy. High levels of correspondence were found between experimental conditions and self-reports; findings that offer support for the claim of construct validity. Five studies report coefficient alphas that range from .85 to .92 for each dimension; values that support assertions of reliability of the multi-dimensional measure (Breaugh, 1985; 1989; Breaugh & Becker, 1987).

Data Analysis

Tests of normality of distributions, linearity of relationships, and non-collinearity among variables suggested that assumptions of inferential statistical analysis were met (Neter, Kutner, Nachtscheim, & Wasserman, 1996). Cronbach's alpha coefficients, reported in Table 2, indicate the reliability of each measure for the study population in question.

Statistics computed in data analyses include t-tests, analysis of variance (ANOVA), Pearson product-moment correlation coefficients, and regression. SPSS (Statistical Packages for the Social Sciences) and Systat software were utilized for data analysis procedures. An alpha of .05 was chosen as the critical level for hypothesis testing.

Analytical techniques used in this study were selected in order to enable responses to questions stated as hypotheses. Pearson product-moment correlation and regression analyses are applied to address research questions that are concerned with relationships, while ANOVA is used in analyses that respond to research questions that are concerned with differences. Pearson product-moment correlation is used to examine relationships between two variables, here between support for innovation and communication openness, and support for innovation and work autonomy. The correlation coefficient is "the average product of the deviation scores for two variables divided by the product of their standard deviation" (Freed, Ryan, & Hess, 1991, p. 51). The computation only reflects linear relationships and assumes that both variables are normally distributed.

Table 2. Reliability Coefficients for Organizational Climate Measures.

Measure	Cronbach's Alpha Coefficient
SSSI – Total (61 items)	.994
SSSI – Leadership Scale (19 items)	.985
SSSI – Ownership Scale (16 items)	.962
SSSI – Norms for Diversity Scale (9 items)	.971
SSSI – Continuous Development Scale (10 items)	.980
SSSI – Consistency Scale (7 items)	.960
Communication Openness (5 items)	.823
Work Autonomy – Total (9 items)	.945
Work Autonomy – Methods Scale (3 items)	.974
Work Autonomy – Schedule Scale (3 items)	.780
Work Autonomy – Evaluation Scale (3 items)	.936

ANOVA is used to examine the variance in a dependent variable "in terms of the proportion of variance that can be attributed to certain factors" (Freed, Ryan, & Hess, 1991, p. 85). The technique is applied in this study to compare means of various groups, and to ascertain whether the means of groups are significantly different. An assumption of one-way ANOVA is that there is homogeneity of variance within groups, normal distributions in the populations, and independence among observations.

Multiple regression analysis was used in this study to identify the proportion of variance in perceived support for innovation accounted for by communication openness and work autonomy, and to control the influence of confounding variables. The control variables in this study were gender, age, education, years in the profession, years in current position, and employment status (part-time or full-time). Multiple regression analyses assume that dependent and independent variables are normally distributed. Support for innovation in this exploratory study functions as the dependent variable, and communication openness and work autonomy are the independent variables.

"Multiple regression lends itself to 'blind' empiricism in which some measures that happen to be available are used as independent variables to predict a dependent measure without any conceptual framework to suggest a rationale for such prediction" (Freed, Ryan, & Hess, 1991, p. 63). The conceptual framework for support for innovation, as previously noted, is evolving. Multiple regression is particularly useful, in these circumstances, in an effort to extend the theoretical lens for examining the support for innovation construct. No assumptions are made, however, in terms of empirical predictive relationships.

CHAPTER IV

DATA DESCRIPTION AND ANALYSIS

This study examines research questions related to organizational support for innovation in a community college setting. A universe of faculty members at a single institution was invited to participate in the study. Respondents completed a questionnaire that included three measures of organizational climate: support for innovation (dependent variable), communication openness (independent variable), and work autonomy (independent variable). Demographic and work experience data were also obtained through the questionnaire.

Three sets of null hypotheses frame this study:

1. There will be no significant differences in perceptions of organizational support for innovation in terms of gender, age, education, racial identification, years in the profession, years in current position, employment status (full-time or part-time), or intent-to-stay.

2. There will be no significant differences in perceptions of organizational support for innovation in terms of respondents' academic field or degree program in which the majority of their teaching activities occur.

3. There will be no relationship between organizational support for innovation and respondents' perceptions of communication openness and work autonomy.

This chapter includes a description of the collected data and a summary of study findings. The first section includes a description of respondent characteristics. Statistical tests related to support for innovation and respondent characteristics are described in the second section. The third section includes academic department and degree program information. Statistical tests of hypotheses related to academic department and degree program are summarized in the fourth section. Communication openness and work autonomy data are described in the fifth section. The final section addresses research questions related to support for innovation, communication openness, and work autonomy.

Respondent Characteristics

The study universe included all faculty members at a large, urban community college. Analyses are based on responses from 31% (N=184) of the invited universe. The response rate is comparable to those of related studies of faculty perceptions, which reported response rates ranging from 24% to 47% (Carnahan, 1982; Cooper & Hensley, 1993; Marcus & Smith, 1996; Smart, Kuh, & Tierney, 1997). The characteristics of the sample are summarized in Table 3.

A majority (56.5%) of the respondents were female. Most respondents were in their 30s (35.6%) or 40s (46.6%). Others were in their 20s (2.9%) or 50s (14.9%). Education levels were considered in terms of highest degree obtained. Most respondents held master's (77.0%) or doctorate (16.4%) degrees. Few reported that their highest degree was the bachelor's (4.2%). A small percentage (2.4%) held specialist degrees.

Table 3. Respondent Characteristics.

Variable	N	Percent
Gender		
• Male	80	43.5
• Female	104	56.5
Age		
• 20-29 years	5	2.9
• 30-39	62	35.6
• 40-49	81	46.4
• 50-59	26	14.9
• 60 or over	0	0.0
Education		
• Bachelor's	7	4.2
• Master's	127	77.0
• Specialist	4	2.4
• Doctorate	27	16.4
Racial Identification		
• African American	13	10.4
• Asian	4	3.2
• Hispanic	46	36.8
• White	62	49.6
Years in Profession		
• less than 2 years	0	0.0
• 2-4	11	6.0
• 5-7	38	20.9
• 8-10	61	33.5
• 11 or more	72	39.6

Table 3 -- continued

Variable	N	Percent
Years in Current Position		
• less than 2 years	0	0.0
• 2-4	21	11.7
• 5-7	37	20.7
• 8-10	69	38.5
• 11 or more	52	29.1
Employment Status		
• Full-time	149	89.2
• Part-time	18	10.8
Intent-to-Stay		
• Agree	146	80.2
• Neutral	14	7.7
• Disagree	22	12.1

Racial identifications were predominantly white (49.6%) and Hispanic (36.8%). Others identified themselves as African-American (10.4%) or Asian (3.2%).

Many respondents had extensive work experience in higher education; 39.6% had 11 years or more experience in community college teaching. One-third (33.5%) of respondents had 8 to 10 years of experience, and 20.9% had 5 to 7 years of experience. Others (6.0%) reported 2 to 4 years of higher education experience.

Tenure in current position data showed that 29.1% of respondents held their positions for 11 years or more, and 38.5% had been employed for 8 to 10 years. One-fifth (20.7%) of respondents had been positional incumbents for 5 to 7 years. Others (11.7%) reported 2 to 4 years of experience in their current positions. A majority (89.2%) of respondents were full-time faculty members.

A large percentage of respondents indicated an intention to stay at their current organization. A majority (80.2%) agreed with the statement, "there are few chances that I will search for a job at another organization within the next year." Few (12.1%) disagreed with the statement, and 7.7% were neutral.

Innovation and Respondent Characteristics

The Siegel Scale of Support for Innovation (Siegel & Kaemmerer, 1978; SSSI) consists of 61 items and five scales. Scores on the five scales and the total score constitute the dependent variables in this study. Inferential statistics were computed to test hypotheses related to respondent characteristics and the support for innovation variables.

Responses to the SSSI

Means and standard deviations for the five scales and the total SSSI are included in Table 4. Scores suggest that respondents, in the aggregate, perceive moderate levels of support for innovation. Scale scores and the total score were higher than means found in studies of U.S. corporations and educational institutions (Henkin & Davis, 1991; Henkin,

Davis, & Singleton, 1993; Young, 1993). The mean SSSI total score (4.44) was higher than the 3.50 mean identified by Siegel and Costa (1986) as the level necessary to indicate that an organization's climate is conducive to innovation.

Table 4. SSSI: Scale Means and Standard Deviations.

Variable	Mean	Standard Deviation
SSSI – Total	4.44	0.98
SSSI – Leadership scale	4.32	1.04
SSSI – Ownership scale	4.54	0.87
SSSI – Norms for Diversity scale	4.49	1.03
SSSI – Continuous Development scale	4.38	1.05
SSSI – Consistency scale	4.51	1.05

Gender

Female respondents had higher scores on the total SSSI and on each of the five scales. None of the differences, however, were statistically significant. Findings by gender are included in Table 5.

Table 5. Gender and Perceived Support for Innovation.

Variable	Male (mean)	Female (mean)	t-score	p-value
SSSI – Total	4.32	4.52	1.37	.171
SSSI – Leadership scale	4.19	4.42	1.51	.133
SSSI – Ownership scale	4.47	4.59	0.95	.343
SSSI – Norms for Diversity scale	4.35	4.61	1.70	.090
SSSI – Continuous Development scale	4.27	4.47	1.31	.192
SSSI – Consistency scale	4.39	4.61	1.37	.172

Age

A consistent pattern was identified when respondents were categorized by age. Older respondents perceived higher levels of support for innovation than younger respondents. The 50-59 age group had the highest scores on the total SSSI and on each of the five scales. The 40-49 and 30-39 age groups had intermediary total scores and scale scores. The 20-29 age group had the lowest scores on the total SSSI and on each of the five scales. Mean scores by age group are included in Table 6.

Table 6. Age and Perceived Support for Innovation

Variable	20-29	30-39	40-49	50-59
SSSI – Total	4.16	4.35	4.49	4.68
SSSI – Leadership scale	4.12	4.23	4.37	4.55
SSSI – Ownership scale	4.14	4.45	4.58	4.79
SSSI – Norms for Diversity scale	4.22	4.41	4.54	4.76
SSSI – Continuous Development scale	4.10	4.30	4.45	4.61
SSSI – Consistency scale	4.30	4.42	4.57	4.74

Data were re-categorized for analysis, given the small number of respondents in the 20-29 age group. The 20-29 and 30-39 age groups were combined. None of the group mean differences, however, were statistically significant. Findings from the re-categorized data are included in Table 7.

Table 7. Age (re-categorized) and Perceived Support for Innovation.

Variable	20-39	40-49	50-59	F	p-value
Total	4.33	4.49	4.68	1.26	.288
Leadership	4.22	4.37	4.55	1.07	.345
Ownership	4.43	4.58	4.79	1.73	.180
Norms for Diversity	4.40	4.54	4.76	1.25	.289
Continuous Develop.	4.29	4.45	4.61	1.03	.358
Consistency	4.41	4.57	4.74	1.08	.343

Education

Respondents whose highest degree was the bachelor's had the highest scores on the total SSSI and on each of the five scales. Respondents with advanced degrees -- doctorate or specialist -- had lower scores than either bachelor's or master's degree holders. Mean scores by education level are included in Table 8.

Table 8. Education and Perceived Support for Innovation.

Variable	Bachelor's	Master's	Specialist	Doctorate
SSSI – Total	4.51	4.45	4.18	4.21
SSSI – Leadership	4.39	4.35	4.02	4.05
SSSI – Ownership	4.62	4.54	4.39	4.39
SSSI – Norms for Diversity	4.56	4.52	4.17	4.27
SSSI – Continuous Development	4.47	4.39	4.13	4.18
SSSI – Consistency	4.60	4.55	4.21	4.23

Data were re-categorized for analysis, given the small number of respondents in the bachelor's and specialist categories. Bachelor's and master's degree holders were placed in one group, and doctorate and specialist degree holders were placed in another group. A t-test was performed to determine if the scores of doctorate and specialist degree holders differed from those of bachelor's and master's degree holders. Mean differences were not statistically significant. Findings from the re-categorized data are included in Table 9.

Table 9. Education (re-categorized) and Perceived Support for Innovation.

Variable	BA/MA	Spec./Ph.D.	t-score	p-value
SSSI – Total	4.46	4.21	1.26	.211
SSSI – Leadership	4.35	4.04	1.47	.144
SSSI – Ownership	4.55	4.39	0.89	.372
SSSI – Norms for Diversity	4.52	4.26	1.26	.209
SSSI – Continuous Development	4.39	4.17	1.04	.298
SSSI – Consistency	4.55	4.23	1.55	.122

Racial Identification

Score differences by racial identification group were not statistically significant. Findings by racial identification are included in Table 10.

Table 10. Racial Identification and Perceived Support for Innovation.

Variable	African American	Asian	Hispanic	White	F	p-value
SSSI – Total	4.45	4.41	4.48	4.42	0.03	.992
SSSI – Leadership	4.34	4.28	4.37	4.29	0.06	.983
SSSI – Ownership	4.60	4.47	4.56	4.54	0.03	.992
SSSI – Norms for Diversity	4.51	4.58	4.51	4.47	0.03	.994
SSSI – Continuous Development	4.36	4.35	4.45	4.36	0.07	.978
SSSI – Consistency	4.47	4.46	4.57	4.51	0.05	.985

Years in Profession

Respondents with extensive experience in higher education tended to perceive the institution as more supportive of innovation than respondents with more limited experiential backgrounds. Faculty with 11 years or more experience in the profession had the highest scores on the total SSSI and on each of the five scales. Faculty with 2 to 4 years of experience had the lowest scores on the total SSSI and on each of the five scales. Findings by years in the profession are included in Table 11.

Table 11. Years in Profession and Perceived Support for Innovation.

Variable	2-4 years	5-7 years	8-10 years	11 or more
SSSI – Total	4.01	4.32	4.25	4.71
SSSI – Leadership	3.85	4.22	4.13	4.59
SSSI – Ownership	4.18	4.39	4.38	4.80
SSSI – Norms for Diversity	4.01	4.38	4.30	4.77
SSSI – Continuous Development	4.02	4.27	4.18	4.66
SSSI – Consistency	4.04	4.41	4.30	4.81

Data were re-categorized for analysis, given the small number of respondents in the 2 to 4 years of experience category. The 2 to 4 years and 5 to 7 years categories were combined. Mean differences among groups were significant for the total SSSI and for each of the five scales. Tukey follow-up tests showed that respondents with 11 or more years of experience had significantly higher scores on the total SSSI and on each of the five scales than the 2 to 7 years and 8 to 10 years groups. Mean differences between the 2 to 7 years group and the 8 to 10 years group were not significant. Findings from the re-categorized data are included in Table 12.

Table 12. Years in Profession (re-categorized) and Perceived Support for Innovation.

Variable	2-7 years	8-10 years	11+ years	F	p-value
Total	4.25	4.25	4.71	4.90	.008
Leadership	4.14	4.13	4.59	4.32	.015
Ownership	4.34	4.38	4.80	5.85	.003
Norms for Diversity	4.30	4.30	4.77	4.77	.010
Continuous Develop.	4.22	4.18	4.66	4.29	.015
Consistency	4.33	4.30	4.81	5.04	.007

Years in Current Position

Respondents with 5 to 7 years of experience in their current positions had the highest scores on the total SSSI and on the five scales. Respondents who reported 2 to 4 years of positional incumbency had the lowest scores on the total SSSI and on the five scales. None of the differences, however, were statistically significant. Findings by positional incumbency are included in Table 13.

Table 13. Years in Current Position and Perceived Support for Innovation.

Variable	2-4 yrs.	5-7 yrs.	8-10 yrs.	11+ yrs.	F	p-value
SSSI – Total	3.98	4.59	4.53	4.40	2.10	.102
SSSI – Leadership	3.84	4.49	4.43	4.25	2.22	.088
SSSI – Ownership	4.11	4.66	4.62	4.54	2.25	.084
SSSI – Norms for Diversity	4.00	4.67	4.57	4.49	2.20	.090
SSSI – Continuous Development	3.93	4.59	4.47	4.32	2.03	.111
SSSI – Consistency	4.10	4.62	4.61	4.49	1.42	.238

Employment Status

Full-time faculty members had higher scores on the total SSSI and on the five scales. None of the differences, however, were statistically significant. Findings by employment status are included in Table 14.

Table 14. Employment Status and Perceived Support for Innovation.

Variable	Full-time	Part-time	t-score	p-value
SSSI – Total	4.49	4.20	1.16	.247
SSSI – Leadership	4.38	4.12	0.98	.328
SSSI – Ownership	4.60	4.23	1.67	.097
SSSI – Norms for Diversity	4.55	4.23	1.22	.223
SSSI – Continuous Development	4.44	4.14	1.13	.257
SSSI – Consistency	4.55	4.41	0.55	.582

Intent-to-Stay

Respondents who indicated an intention to stay in their current organization had the highest scores on the total SSSI and on the five scales. Differences were significant at the .001 level. Tukey follow-up tests showed that the "agree" group's mean was significantly higher than the "neutral" and "disagree" groups' means. The "neutral" group's mean was also significantly higher than the "disagree" group's mean. Findings by intent-to-stay are included in Table 15.

Table 15. Intent-to-Stay and Perceived Support for Innovation.

Variable	Agree	Neutral	Disagree	F	p-value
Total	4.75	3.56	2.86	73.99	.000
Leadership	4.64	3.43	2.70	66.68	.000
Ownership	4.82	3.73	3.15	77.84	.000
Norms for Diversity	4.81	3.58	2.88	69.77	.000
Continuous Develop.	4.72	3.43	2.67	78.08	.000
Consistency	4.83	3.66	2.88	73.99	.000

Departmental Setting

Respondents' primary teaching responsibilities were concentrated in the humanities (37.8%) and vocational programs (30.5%). Other respondents had instructional assignments in social science (18.3%) and natural science (13.4%) departments. A majority (60.4%) of respondents were faculty in the associate in arts degree program. Others (14.3%) taught courses in the associate in science degree

program. Some faculty were assigned to community and special academic programs (19.2%) or college credit certificate programs (6.0%).

Innovation and Departmental Setting

Relationships between departmental setting and support for innovation were examined. Inferential statistics were computed to test hypotheses related to respondents' academic field and degree program.

Academic Field

Faculty whose primary teaching responsibilities were in social science departments had the highest scores on the total SSSI and on the five scales. Faculty in natural science departments had the lowest scores on the total SSSI and on the five scales. Respondents with teaching responsibilities in the humanities or vocational education had intermediate scores. None of the differences, however, were statistically significant. Findings by academic field are included in Table 16.

Degree Program

Faculty in the associate in arts degree program had the highest scores on the total SSSI and on the five scales. None of the differences, however, were statistically significant. Findings by degree program are included in Table 17.

Table 16. Academic Field and Perceived Support for Innovation.

Variable	Natural Science	Social Science	Humanities	Vocational Education	F	p-value
SSSI – Total	4.13	4.64	4.48	4.31	1.43	.235
SSSI – Leadership	3.96	4.52	4.39	4.29	1.54	.207
SSSI – Ownership	4.30	4.74	4.55	4.40	1.46	.227
SSSI – Norms for Diversity	4.22	4.69	4.55	4.36	1.19	.317
SSSI – Continuous Development	4.03	4.61	4.45	4.25	1.61	.188
SSSI – Consistency	4.20	4.69	4.56	4.41	1.11	.348

Table 17. Degree Program and Perceived Support for Innovation.

Variable	Associate in Arts	Associate in Science	College Credit	Community Programs	F	p-value
SSSI – Total	4.48	4.35	4.40	4.35	0.23	.872
SSSI – Leadership	4.36	4.26	4.26	4.21	0.23	.873
SSSI – Ownership	4.57	4.44	4.50	4.50	0.19	.905
SSSI – Norms for Diversity	4.55	4.38	4.46	4.38	0.33	.806
SSSI – Continuous Development	4.44	4.25	4.41	4.28	0.34	.796
SSSI – Consistency	4.55	4.48	4.50	4.39	0.21	.891

Organizational Climate

Hypothetical associations between perceived organizational support for innovation and two aspects of organizational climate -- communication openness and work autonomy -- were tested through correlation and regression analyses. Mean scores on the openness scale of the O'Reilly and Roberts (1976) communication instrument indicate that respondents, in the aggregate, feel free to interact with one another. Faculty members in the study institution perceived the organizational climate to be supportive of

interpersonal interaction. Mean scores on the work autonomy scales (Breaugh, 1985) suggest that respondents perceive high levels of discretion in terms of work methods, scheduling, and evaluation. Respondent means were higher than those reported in studies of supervisors in manufacturing organizations (Breaugh, 1989) and technical professionals in a chemical company (Breaugh, 1985). Scores were highest on the method autonomy scale; the dimension of autonomy associated with the processes and procedures faculty members utilize in their work. Means and standard deviations for the communication openness and work autonomy variables are included in Table 18.

Table 18. Communication Openness and Work Autonomy: Means and Standard Deviations.

Variable	Mean	Standard Deviation
Communication Openness	5.76	0.85
Work Autonomy – Total	5.71	0.73
Work Autonomy – Method scale	5.88	0.68
Work Autonomy – Schedule scale	5.55	0.83
Work Autonomy – Evaluation scale	5.70	0.86

Organizational Climate and Innovation

Correlations between communication openness and the five innovation scales were positive and ranged from .679 to .733. The correlation between communication openness and the total SSSI score was .720.

Correlations between the method dimension of work autonomy and the five innovation scales were positive and ranged from .463 to .539. The correlation between the method dimension of work autonomy and the total SSSI score was .505.

Correlations between the scheduling dimension of work autonomy and the five innovation scales were positive and ranged from .412 to .483. The correlation between the scheduling dimension of work autonomy and the total SSSI score was .451.

Correlations between the evaluation dimension of work autonomy and the five innovation scales were positive and ranged from .351 to .444. The correlation between the evaluation dimension of work autonomy and the total SSSI score was .396.

Results of a parallel test considering the total work autonomy score and the five innovation scales also were positive. Correlations ranged from .437 to .532. The correlation between the total work autonomy score and the total SSSI score was .482. Findings of correlational tests are included in Table 19.

Regression analyses suggest that communication openness may explain more of the variance in perceived organizational support for innovation than work autonomy. In the first regression model, the communication openness variable was entered first. Communication openness alone accounted for 51.8% of the variance in the total SSSI score. The communication variable accounted for 46.1% to 53.7% of the variance

Table 19. Support for Innovation, Communication Openness, and Work Autonomy: Correlational Results.

	Leadership	Ownership	Norms for Diversity	Continuous Develop.	Consistency	Total
Communication Openness	.720	.733	.704	.701	.679	.720
Work Autonomy – Total	.467	.523	.464	.475	.437	.482
Work Autonomy – Method	.492	.539	.486	.498	.463	.505
Work Autonomy – Schedule	.437	.483	.438	.447	.412	.451
Work Autonomy – Evaluation	.380	.444	.378	.388	.351	.396

in the five innovation scales. The total work autonomy variable was then entered into the model. The total work autonomy score did not account for much additional variance when communication openness was already in the regression model. R-square changes ranged from .001 to .009. Unique variance attributable to work autonomy was negligible, controlling for communication openness.

In the second regression model, the work autonomy variable was entered first. The total work autonomy score alone accounted for 23.2% of the variance in the total SSSI score. The work autonomy variable accounted for 19.1% to 27.4% of the variance in the five innovation scales. The communication openness variable was then entered

into the model. The communication openness variable uniquely accounted for significant proportions of variance when work autonomy was already in the regression model. Communication openness uniquely accounted for 29.2% of the variance in the total SSSI score. R-square changes ranged from 26.4% to 30.9% for the five innovation scales. Unique variance attributable to communication openness was significant, controlling for work autonomy. Summaries of these regression models are included in Tables 20 and 21.

Table 20. Support for Innovation Regression Models: Unique Contribution of Work Autonomy Variable, Controlling for Communication Openness.

Dependent Variable	Model	R Square	R Square Change
SSSI – Total	1. Communication	.518	
	2. Comm. + Autonomy	.524	.006
SSSI – Leadership	1. Communication	.518	
	2. Comm. + Autonomy	.527	.009
SSSI – Ownership	1. Communication	.537	
	2. Comm. + Autonomy	.538	.001
SSSI – Norms for Diversity	1. Communication	.496	
	2. Comm. + Autonomy	.503	.007
SSSI – Continuous Development	1. Communication	.492	
	2. Comm. + Autonomy	.496	.004
SSSI – Consistency	1. Communication	.461	
	2. Comm. + Autonomy	.470	.009

Table 21. Support for Innovation Regression Models: Unique Contribution of Communication Openness Variable, Controlling for Work Autonomy.

Dependent Variable	Model	R Square	R Square Change
SSSI – Total	1. Autonomy	.232	
	2. Autonomy + Comm.	.524	.292
SSSI – Leadership	1. Autonomy	.218	
	2. Autonomy + Comm.	.527	.309
SSSI – Ownership	1. Autonomy	.274	
	2. Autonomy + Comm.	.538	.264
SSSI – Norms for Diversity	1. Autonomy	.215	
	2. Autonomy + Comm.	.503	.288
SSSI – Continuous Development	1. Autonomy	.226	
	2. Autonomy + Comm.	.496	.270
SSSI – Consistency	1. Autonomy	.191	
	2. Autonomy + Comm.	.470	.279

Regression analyses indicate that communication openness uniquely accounted for variance in perceived organizational support for innovation when controls were established for demographic variables. Gender, age, education, years in the profession, years in current position, and employment status (full-time or part-time) were transformed into dummy variables, and entered into the regression model simultaneously. The demographic variables accounted for small, but statistically significant amounts of variance in the total SSSI score, as well the five scales. Variance in the SSSI scales attributable to demographic variables ranged from 18.9% to 20.6%. The communication

openness variable was then entered into the model. Increases in R-square were statistically significant, and ranged from .285 to .340. The work autonomy variable was then entered into the model. The unique contribution of work autonomy, controlling for demographic variables and communication openness, was again negligible. R-square increases ranged from .000 to .007.

In a second regression model, the demographic variables were entered first, followed by the work autonomy variable. Increases in R-square were statistically significant, and ranged from .127 to .187. These increments, however, were less than those associated with communication openness found in the first regression model. The communication openness variable was then entered into the model. The unique contribution of communication openness, controlling for demographic variables and work autonomy, was statistically significant. R-square increases ranged from .150 to .177. Summaries of these regression models are included in Tables 22 and 23.

Summary of Findings

Three sets of research questions were examined. Results of hypothesis tests are summarized in this section.

The first set of research questions involved differences in perceptions of organizational support for innovation in terms of respondent characteristics; specifically, gender, age, education, racial identification, years in the profession, years in current position, employment status (full-time or part-time), and intent-to-stay. Six null

Table 22. Support for Innovation Regression Models: Unique Contribution of Work Autonomy Variable, Controlling for Respondent Characteristics and Communication Openness.

Dependent Variable	Model	R Square	R Square Change
SSSI – Total	1. Respondent Characteristics	.202	
	2. (1) + Comm.	.523	.321
	3. (2) + Autonomy	.527	.004
SSSI – Leadership	1. Respondent Characteristics	.202	
	2. (1) + Comm.	.522	.320
	3. (2) + Autonomy	.527	.005
SSSI – Ownership	1. Respondent Characteristics	.206	
	2. (1) + Comm.	.546	.340
	3. (2) + Autonomy	.546	.000
SSSI – Norms for Diversity	1. Respondent Characteristics	.199	
	2. (1) + Comm.	.509	.310
	3. (2) + Autonomy	.516	.007
SSSI – Continuous Development	1. Respondent Characteristics	.189	
	2. (1) + Comm.	.491	.302
	3. (2) + Autonomy	.493	.002
SSSI – Consistency	1. Respondent Characteristics	.202	
	2. (1) + Comm.	.487	.285
	3. (2) + Autonomy	.494	.007

Table 23. Support for Innovation Regression Models: Unique Contribution of Communication Openness Variable, Controlling for Respondent Characteristics and Work Autonomy.

Dependent Variable	Model	R Square	R Square Change
SSSI – Total	1. Respondent Characteristics	.202	
	2. (1) + Autonomy	.360	.158
	3. (2) + Comm.	.527	.167
SSSI – Leadership	1. Respondent Characteristics	.202	
	2. (1) + Autonomy	.354	.152
	3. (2) + Comm.	.527	.173
SSSI – Ownership	1. Respondent Characteristics	.206	
	2. (1) + Autonomy	.393	.187
	3. (2) + Comm.	.546	.153
SSSI – Norms for Diversity	1. Respondent Characteristics	.199	
	2. (1) + Autonomy	.339	.140
	3. (2) + Comm.	.516	.177
SSSI – Continuous Development	1. Respondent Characteristics	.189	
	2. (1) + Autonomy	.343	.154
	3. (2) + Comm.	.493	.150
SSSI – Consistency	1. Respondent Characteristics	.202	
	2. (1) + Autonomy	.329	.127
	3. (2) + Comm.	.494	.165

hypotheses were retained. No significant differences in perceived organizational support for innovation were found in terms of gender, age, education, racial identification, years in current position, or employment status. Two null hypotheses were rejected. Significant differences in perceived organizational support for innovation were found in terms of years in the profession and intent-to-stay. Respondents with 11 or more years of professional experience perceived the highest levels of support for innovation. Respondents who intend to remain in the organization perceived higher levels of support for innovation than those who intend to search for a job in another organization.

The second set of research questions involved differences in perceptions of organizational support for innovation in terms of departmenta' settings. Two null hypotheses were retained. No significant differences in perceived organizational support for innovation were found in terms of respondents' academic field or degree program in which the majority of their teaching activities occur.

The third set of research questions involved relationships between perceptions of organizational support for innovation and communication openness and work autonomy. Two null hypotheses were rejected. A positive, statistically significant relationship was found between organizational support for innovation and communication openness. Parallel tests revealed a positive, statistically significant relationship between organizational support for innovation and work autonomy. Regression analyses indicated that communication openness accounted for the largest proportion of variance in organizational support for innovation. Communication openness accounted for approximately one-half of the variance in organizational support for innovation. This

variable accounted for statistically significant proportions of variance, even when controlling for work autonomy and demographic variables. Results of hypothesis tests are included in Table 24.

Table 24. Summary of Results of Hypothesis Tests.

Variable	Total	Leadership	Ownership	Norms for Diversity	Continuous Develop.	Consistency
Gender	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Age	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Education	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Racial Identification	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Years in Profession	**	*	**	*	**	*
Years in Current Position	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Employment Status	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Intent-to-Stay	**	**	**	**	**	**
Academic Field	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Degree Program	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Communication Openness	**	**	**	**	**	**
Work Autonomy	**	**	**	**	**	**

* = $p<.05$
** = $p<.01$
n.s. = non-significant

Perceptions of organizational support for innovation did not differ significantly in terms of individual variables or departmental affiliation. Only two individual variables -- years in the profession and intent-to-stay in the organization -- accounted for differences in SSSI scores. Work environment variables were more highly correlated with perceived support for innovation than individual variables. Two work environment variables -- communication openness and work autonomy -- together accounted for 47% to 54% of the variance in support for innovation. Six demographic variables -- gender, age, education, years in the profession, years in current position, and employment status -- together accounted for only 19% to 20% of the variance in support for innovation.

Communication openness accounted for the highest amount of variance in SSSI scores. The communication variable accounted for 46% to 54% of the variance in perceived support for innovation, and uniquely accounted for 35% to 40% of the variance when controlling for demographic variables. Communication openness uniquely accounted for 26% to 31% of the variance in perceived support for innovation when controlling for work autonomy, and 15% to 18% of the variance when controlling for both demographic variables and work autonomy.

Support for innovation, in this study, appears to be associated more strongly with perceptions of the work environment than with individual characteristics. Findings suggest that administrative interventions that alter the work environment may enhance perceptions of organizational support for innovation, and engender change-related activity. Interventions and related strategies for aligning dimensions of the work

environment with organizational requisites for innovation are described in the next chapter.

CHAPTER V

DISCUSSION AND INTERPRETATION OF FINDINGS

Study findings are reviewed and interpreted in the context of changing political and economic environments encountered by community colleges. The need for continuous vigilance in terms of maintaining a supportive organizational climate is suggested. Interventions related to enhancing organizational support for innovation are elaborated. Finally, directions for future research are recommended.

Context for Change

Input from the external environment is a major determinant of organizational innovation (Baldridge & Burnham, 1975). Innovation tends to become more frequent and varied as organizational environments become more complex (Damanpour, 1996; Kimberly & Evanisko, 1981). Community colleges encounter an increasingly turbulent external environment, which compels many institutions to adopt extensive internal changes in program offerings and administrative policies.

Several market trends and external forces suggest that community colleges may expect high rates of change and uncertainty. First, the growth of distance education and Internet-based instruction has enabled community colleges to compete in geographic areas far distant from the physical location of their campuses. Traditional community

college missions to serve students who live and work nearby have expanded, in many instances, to include service to distant student populations (O'Banion, 1997). College-choice markets which were once stable -- students tended to enroll in the community college closest to their home -- are now in flux, as institutions compete with in-state and interstate rivals (Blumenstyk, 1998).

Second, community colleges also encounter competition from for-profit institutions and corporations that provide college-style courses in traditional classrooms or through electronic modalities (Schmidt, 1998b). Students are able to be more selective in their college choice decisions, given the growing number of options available for postsecondary education.

Third, rapid obsolescence of information technologies and increasing international competition have resulted in extensive job displacement, and produced a hiatus between supply and demand for skilled workers (Jaschik & Young, 1998). Federal job training legislation, passed by Congress in 1998, enables unemployed workers to obtain vouchers, which they can redeem for educational expenses at community colleges or other institutions (Lederman, 1998). The role of community colleges in workforce retraining and job placement may be expected to increase, as corporate downsizing and technological developments compel individuals to change careers more frequently (Sennett, 1998).

Fourth, the 1996 welfare reform law served as an impetus for community colleges to create welfare-to-work programs (Schmidt, 1998a). Time constraints on welfare benefits suggest that community colleges repackage their course offerings to include

short-term job training, flexible scheduling, and evening and weekend course offerings in order to expedite degree completion. Community college curricula may be expected to expand, moreover, beyond traditional foci on job-related competencies to include training in rudimentary job skills and social competencies, such as punctuality, to individuals with limited employment histories (Schmidt, 1998b).

Fifth, trends toward performance-based appropriations by state governments suggest that community colleges may be expected to demonstrate effectiveness in terms of a number of performance indicators. States may provide bonuses to community colleges that award more degrees and graduate students more quickly (Carnevale, Johnson, & Edwards, 1998). Community colleges may implement new programs and services to improve student retention, and institute new policies to enable students to complete their degrees in less time.

Increasing competition for students, expectations for responsiveness, and pressures for accountability compel many institutions to adopt a range of innovations in efforts to address changes in external environments (Clark, 1996). Innovations in higher education institutions are often implemented by faculty members, whose perceptions of organizational climate condition their receptivity to, and involvement in, change-related initiatives. Capacities to respond effectively and appropriately to environmental stimuli, and in turn maintain public support and legitimacy, may depend on the extent to which community college faculty members perceive their organizational climate as supportive of innovation and creative functioning.

Interpretation of Findings

Faculty members in the study institution perceived comparatively high levels of support for innovation. Respondents' SSSI scores were higher, in the aggregate, than those found in studies of a high technology electronics corporation (Henkin & Davis, 1991), an aerospace company (Young, 1993), and a nursing school faculty (Henkin, Davis, & Singleton, 1993). The study institution is also characterized by on-going innovative initiatives in the areas of distance learning, worker retraining, and welfare-to-work (Blumenstyk, 1998) . Both support for innovation and actual innovative activity appear to be at high levels. Study findings indicate a congruence between individual perceptions and organizational behaviors related to innovation; a finding that supports the claim of validity of the SSSI. The SSSI appears to measure those dimensions of organizational climate that are characteristic of innovative organizations.

Respondents' perceptions of support for innovation differed in terms of intent-to-stay and number of years in the community college teaching profession. Those who intend to stay at their current institution and those who have long-term professional experience indicated high levels of support for innovation. Intent-to-stay and extensive professional experience may function as a surrogate for systemic legitimacy, and indicate congruence between organizational and individual goal structures (Kimberly & Evanisko, 1981). Respondents may strongly identify with the mission of the institution, and wish to remain employed by the organization. Strength of psychological affiliation with the organization may impact individual behaviors related to organizational innovation. Individuals may be more likely to search for new ideas to improve organizational

performance when they identify with, and are committed to the organization (Reichers, 1985; Salancik, 1977).

Long-term professional experience, moreover, is frequently associated with high-level participation in institutional decision making. Feelings of ownership often develop when individuals participate in the selection and initiation of innovations (Rogers & Shoemaker, 1971; Siegel & Kaemmerer, 1978). Long-term professionals who have already established credentials in their respective fields may be more able and willing to devote time and energy to institutional improvement efforts. Faculty with less professional experience may find it difficult to participate in activities related to institutional innovation, given the need to solidify their individual teaching, research, and service records in advance of promotion opportunities.

In addition, higher level perceptions of organizational support for innovation among long-term professionals may be associated with realistic expectations for the organization, and more accurate estimations of risk factors involved in creative functioning (Damanpour, 1987; Humphrey, 1987). Professionals with less experience, in contrast, may lack knowledge of how to navigate organizational processes and procedures related to innovation, and may overestimate the risks of introducing new ideas to the organization.

Commitment by professionals to innovation may require the concurrent commitment of the organization; that is, the working environment would be expected to affirm the goal of organizational innovation (Thornton, 1970). Study findings suggest a strong relationship between perceptions of organizational support for innovation and

perceptions of the work environment. Specifically, communication openness and work autonomy were highly correlated with each of the five SSSI scales, as well as the total score. Open communication and work autonomy may enable organizations to cope with environmental uncertainty, and facilitate the development of situationally-appropriate responses to constituent-group expectations.

Individual, group, and organizational responses to environmental uncertainty have been well-documented (Cowen, 1952; Janis, 1982; Pfeffer & Salancik, 1978; Thompson, 1967; Worchel, Andreoli, & Folger, 1977; Zajonc, 1966). Communication and autonomy may be limited when the environment is perceived as threatening.

> First, a threat may result in restriction of information processing, such as a narrowing in the field of attention, a simplification in information codes, or a reduction in the number of channels used. Second, when a threat occurs, there may be a constriction in control, such that power and influence can become concentrated or placed in higher levels of a hierarchy. Thus, it is hypothesized that a threat results in changes in both the information and control processes of a system, and, because of these changes, a system's behavior is predicted to become less varied or flexible (Staw, Sandelands, & Dutton, 1981, p. 502).

Dominant, traditional, or well-learned organizational behaviors are likely to be enacted when individuals perceive environmental threats. Patterned responses, however, are likely to be inappropriate if the external environment is changing rapidly; as it is with regard to community colleges. Flexibility and variety in response may be requisites for effective action in complex, turbulent organizational environments (Weick, 1979). Open communication and high-level discretion, moreover, broaden information bases available for decision making, increase the number of response options considered, stimulate

problem analysis, and strengthen motivation and commitment necessary for implementation (Hirokawa, 1988; Larson & LaFasto, 1989; Spector, 1986).

Related organizational research suggests a number of potential reasons for associations among communication openness, work autonomy, and perceived support for innovation. One reason why communication openness and work autonomy were associated with higher level perceptions of support for innovation may be that they enable individuals to improvise. Improvisation -- the act of simultaneously initiating and implementing innovations (Brown & Eisenhardt, 1997) -- is a major responsibility of community college faculty members who both design and deliver instruction. Faculty members improvise when they adapt instructional methods and techniques to meet the needs of students more effectively. They may utilize techniques such as fast feedback to assess student learning needs and to identify discrepancies between lesson objectives and learning outcomes (Roberts, 1995). The pace, method, and/or style of instruction may be modified, in turn, to reflect students' preferred ways of learning.

Improvisation may be an appropriate descriptor of organizational behavior in community colleges, given the need to adapt instruction to fit the needs of students with diverse backgrounds, experiences, and interests. Community colleges are expected to serve a broad spectrum of students including those with limited work histories who seek to become independent from welfare, to those with extensive work experience who wish to obtain new skills to compete for jobs in high technology sectors of the economy. Faculty members in these institutions may not rely on established course syllabi and

traditional modus operandi. Instead, they may continually redesign their courses to reflect the range of educational goals and academic abilities of their students.

Improvisation in community colleges requires extensive coordination among colleagues and flexibility in terms of work-related behaviors (Bastien & Hostager, 1988). Instructional improvisation in one course may affect faculty members in other courses that are linked together by programmatic sequence; a common occurrence in community college programs oriented toward professional preparation, certification, or licensure. Open communication facilitates the development of feedback channels, which enable faculty members to coordinate and mutually adjust their behavioral repertories and professional interactions. Community colleges that provide high levels of faculty autonomy, moreover, are characterized by flexible work processes and procedures, which enhance individual capacities to adapt to the rapid pace of change in the institutional environment.

Another reason may be that open communication and work autonomy enable organizations to maintain a dialectical tension that is necessary for successful innovation. Innovation research suggests that organizational contexts that support the initiation of innovations may stifle implementation, and contexts that foster implementation may impede initiation (Burns & Stalker, 1994; Seymour, 1988; Zaltman, Duncan, & Holbek, 1973). Initiation of innovations may require individual creativity and freedom from organizational constraints (Basadur, 1995). Extensive freedom at work, however, may make coordination difficult and, in turn, impede implementation. Implementation of innovations may require patterns of interaction and behavioral specifications that

facilitate coordination and ensure continuity (Lindquist, 1978). Patterned behaviors, however, may constrict individual creativity, and limit the ability of individuals to experiment with new practices.

Some organizations may be characterized as organic; that is, more supportive of initiation. Others may be classified as mechanistic or more supportive of implementation (Burns & Stalker, 1994). Organic organizations generate a number of new ideas, but frequently fail to utilize them. Mechanic organizations are able to incorporate new ideas into organizational practices more readily, but their organizational structures tend to discourage creativity or behaviors that deviate from established norms. Organizations that incorporate both mechanistic and organic characteristics, in contrast, have produced more successful innovations, and have addressed changing market demands more effectively (Brown & Eisenhardt, 1997; Spender & Kessler, 1995).

The mechanistic-organic dialectic may be maintained in organizations characterized by open communication and extensive work autonomy. Autonomy appears to support creativity and divergent thinking (Basadur, 1995), and enables modification of innovations to fit unique circumstances (Pressman & Wildavsky, 1979). New ideas are often initiated by autonomous professionals who engage in search activities and interact with colleagues in their field or academic discipline (Blau, 1973; Forsyth & Danisiewicz, 1985; Pavalko, 1988). Coordination for implementation of innovations is achieved through communicative interactions that link individuals across organizational units or academic departments. Innovations are diffused through an organization via communication (Rogers, 1983). Open communication enables the development of a

shared organizational consciousness (Bormann, 1996), which serves as a common frame of reference for assessing problems and implementing innovative solutions.

Neither open communication nor autonomy alone may enable successful organizational innovation. Dialectical tensions between coordination and independence may be maintained through the interaction between communication openness and work autonomy. This interaction is evident in cybernetic feedback loops, which inform organizational members about the appropriateness and/or effectiveness of their actions (Ashby, 1956).

Open communication in an organization facilitates the development of feedback channels. Feedback functions as an implicit social control on autonomous work, as shared norms and values are defined and re-defined through continuous interaction among organizational members (Baxter & Montgomery, 1996; Berger & Luckmann, 1966). Espoused organizational norms and values can influence members' behavioral repertories (Bess, 1988). Feedback may align the behaviors of autonomous professionals with requirements for achieving organizational goals related to innovation (Birnbaum, 1988). Coordination for implementation may be achieved, here, through the communication and reinforcement of organizational value systems.

Autonomous professionals also provide feedback in terms of the appropriateness and/or effectiveness of innovations adopted by the organization. Faculty members, as implementers of educational innovations, are likely to detect design errors in innovations, which may lead to unforeseen outcomes, such as organizational or political opposition. Feedback from faculty members may serve as an "early warning system" that enables

innovations to be modified during implementation to address particular organizational circumstances (Bertalanffy, 1962; Zaltman, Duncan, & Holbek, 1973).

Feedback from autonomous professionals can enable the initiation of innovations that are responsive to unique concerns or circumstances. Feedback to autonomous professionals can generate social cohesion necessary for successful implementation of innovations. Organizational members may perceive higher levels of support for innovation when they receive extensive feedback in the context of autonomous work roles.

Administrative Interventions

Organizational administrators, as change agents with institution-wide responsibilities, are challenged to generate, implement, and sustain innovations that enhance institutional effectiveness and legitimacy (Meyer & Scott, 1992; Yuchtman & Seashore, 1967). Successful innovation in community colleges -- viewed as coping organizations where work processes are not readily observable and outcomes are not easily measured (Wilson, 1989) -- may require concurrent changes in the social values, attitudes, and customs evident in organizational climates (Campbell, Dunnette, Lawler, & Weick, 1970). Organizational climates appear to have a significant impact on individual perceptions of support for creative functioning, and may mediate levels of receptivity and commitment to proposed innovations. The impact of organizational climate on attitudes related to innovation suggests that administrators focus attention on developing or

maintaining supportive organizational climates, as opposed to attempting to change individual values or behaviors (Bennis, 1966; Lewin, 1961).

Research involving for-profit organizations suggests the utility of developing a climate conducive to organizational learning; a process that assertedly promotes organizational innovation and individual creativity (Fichman & Kemerer, 1997; Sias, Kramer, & Jenkins, 1997; Starkey, 1998). Organizations learn "by codifying individual insights, thus making them accessible to others for adoption, true adaptation, change, and generalized application" (Jelinek, 1979, p. 157). Individuals use external communication networks to scan organizational environments for new ideas, and use internal communication channels to incorporate the results of their searches into the organization's shared memory; that is, the innovation is diffused throughout the organization (Argyris & Schon, 1978; Rogers, 1983). Once embedded in the organization's memory, the innovation is institutionalized. It is made accessible and understandable to all organizational members (Curry, 1992).

A learning organization may be defined as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" (Garvin, 1993, p. 80). Climates of such organizations -- characterized by extensive interpersonal communication and high level autonomy (Senge, 1990) -- encourage risk-taking and flexibility in terms of behavioral responses to changing circumstances.

Each member of a learning organization is authorized to search for innovations and engage in creative exploration. Members engage in autonomous search behaviors,

but their behaviors are guided by organizational priorities and social constraints, which are communicated through the organizational climate (Senge, 1990). Decentralized authorities for idea generation and external monitoring cohere around common goals and shared organizational value systems. Autonomous behaviors are reconciled with systemic interdependencies and requirements for collective action.

Community colleges, reconfigured as learning organizations, develop collaborative models of decision making that incorporate the integrated expertise of faculty members, administrators, and external stakeholders such as policy makers and community leaders (O'Banion, 1997). Ideas and policies produced through collaborative decision-making processes are diffused via communication linkages across academic programs and departments. Linkages may be difficult to maintain in diffracted systems; especially where organizational units are loosely coupled (Firestone, 1985; Weick, 1976). Departmental separation and disciplinary fragmentation in academe may constrain efforts to manage interdependencies and align individual work repertoires with organizational goals.

Support Feedback

Tenuous linkages in diffracted systems may be maintained through the use of formal and informal feedback mechanisms (Timm, 1986). Formal feedback may include meetings and/or reports on progress toward organizational goals. A community college program review is an example of formal feedback. Informal feedback, in contrast, occurs through interpersonal communication in routine organizational activity. Feedback

reinforces individual behavior when it encourages organizational members to continue or repeat their actions in subsequent activities (Cairns, 1986). Feedback can be corrective, in other circumstances, where it identifies aspects of improvement for future interactions.

Community college administrators may provide feedback intended to reinforce collaborative behaviors, or correct behaviors deemed antithetical to collective action (Birnbaum, 1988). For example, administrators may publicize a report on a program's efforts to reconfigure course offerings to serve welfare-to-work students more effectively. The report provides recognition to the program, and reinforces the institutional goal of responsiveness to student needs. Administrators may also deliver informal feedback. Discussions with department chairs about graduates' complaints that programs do not incorporate the latest technologies in their field may correct behaviors that maintain the status quo and resist organizational learning.

Management scholars (Barge, 1996; Brophy, 1981; Haslett & Ogilvie, 1988; Lewis, 1980) have identified several characteristics of effective organizational feedback:

1) Feedback should refer to a specific behavior that one intends to reinforce or correct.

2) Feedback should occur as soon as possible after the behavior that one intends to reinforce or correct.

3) Feedback, when it is intended to be corrective, should be stated as a mutual problem. It should not be used as an opportunity for attributing blame.

4) Corrective feedback should suggest possible means for improvement or alternative behaviors.

Community college administrators not only need to provide timely, appropriate feedback to faculty members, but also be receptive to feedback from others. Organizational learning requires continuous re-assessment of goals and objectives, as members discover threats or opportunities in the external environment. Feedback from faculty members and external constituencies may provide information necessary for flexible responses, and enable mutual adaptation of organizational goals and individual behaviors.

Express Conflict

Open communication in an organization increases the number of feedback opportunities available to members, and appears to engender the perception that the organization supports innovative activity. Communicative opportunities for feedback may be constrained, however, by tendencies to avoid or downplay the significance of conflict (Bisno, 1988; Blake & Mouton, 1964). Organizational members may view conflict as a destructive phenomenon, which should be prevented, eliminated, or suppressed (Coch & French, 1958; Drucker, 1968). Administrators who seek to "keep the peace" may demonstrate tendencies toward withdrawal, postponement, or indifference when confronted with controversy or disagreements (Frost & Wilmot, 1978). Functional benefits of conflict, including its unifying, socializing, and integrative effects, are lost when organizational members focus exclusively on the dysfunctional aspects of the phenomenon (Coser, 1956).

Academic institutions may be particularly susceptible to conflict avoidance. "Academicians with preconceptions about harmonious campus life are often reluctant to speak or even think about discord and dissension in their immediate environment" (Tucker, 1984, p. 217). Norms that reinforce the status quo and support collegiality can constrain expression of disagreements among faculty, or between faculty and administrators. Tendencies toward "groupthink" may arise; a scenario in which organizational members avoid conflict and implicitly control dissent (Janis, 1982). Organizational learning and institutional renewal may be difficult to achieve under such circumstances, as members avoid critical analysis of goals and priorities, and fail to adapt to changing environmental circumstances.

The expression of conflict can identify problems or trends that dominant organizational actors may have neglected (Mintzberg, 1985). Conflict may stimulate idea generation and the initiation of problem-solving innovations. Confronting conflict may also improve prospects for implementation, as disagreements are expressed and addressed in advance, rather than avoided and allowed to resurface during implementation (Pressman & Wildavsky, 1979).

Damanpour (1987) suggested that the ability to manage conflict is a critical factor in terms of the success of organizational innovation. Community college administrators are confronted with the dual challenge of managing conflict and overcoming tendencies toward conflict avoidance in academic institutions. Formal mechanisms such as conflict forums may be used to overcome informal social constraints on expressing disagreement.

Specific portions of departmental meetings may be used to express conflict. The discussion of conflict may become a permanent part of meeting agendas.

Educators and management scholars (Briggs, 1997; Deutsch, 1973; Mintzberg, Dougherty, Jorgensen, & Westley, 1996; Timm, 1986) have identified several principles of conflict management; principles that aim to maintain functional benefits and avoid destructive outcomes:

1) Establish parameters for conflict. Focus discussion on a particular disagreement. Do not allow conflict to become personal, or diverge to multiple, unrelated topics.

2) Maintain a win-win orientation toward conflict; a belief that all factions can attain important goals. Avoid voting as a means to select one conflicting interpretation of a problem over another. Voting results in winners and losers, and losers often seek to reverse their fortunes. Here, conflict may re-emerge during implementation and become destructive.

3) Plan for future action. The expression of conflict is merely an exercise if action plans are not developed. Seek to establish a consensus in terms of what should be done, when it should be done, and who should do it.

Differentiate Strategy from Tactics

The expression of conflict supports autonomous work behaviors, and indicates that the organization has decentralized certain decision-making authorities. Decentralized decision making, however, presents two related dilemmas for academic

administrators. First, not all faculty members want to have discretionary authority for all decisions (Lawler, 1973). Some faculty may choose to nominally associate with decision-making bodies (Olson, 1965), while others may wish to involve themselves in only certain issues. Second, administrators must determine which decisions they delegate to others, and which decisions they retain for their own judgment.

These dilemmas are associated with the need to maintain an organizational dialectic; one that provides both freedom and structure, discretion as well as guidance. This dialectic may be maintained when administrators differentiate strategy from tactics. Chandler (1962) suggested that strategic decisions "are concerned with the long-term health of the enterprise. Tactical decisions deal more with the day-to-day activities necessary for efficient and smooth operations" (p. 11). Administrators provide structure when they focus attention on strategic decisions. They enable autonomy when they delegate authorities for tactical decisions to the organization's technology; in this case, to faculty members.

Faculty members are able to focus their searches for new ideas when strategies are well-specified. Time and effort are not wasted developing innovative proposals that have little chance of being adopted. Proposed innovations may be more likely to reflect organizational goals and be compatible with organizational norms, when organizational strategies are specified. Autonomy in terms of tactical decisions may enable faculty members to improvise and adopt innovations that fit the unique needs of students. Day-to-day implementation of innovations may be more effective when the organization's technology (faculty) retains authority to modify work methods and processes.

A major role of administrators in innovative organizations is strategic thinking. This is not the same as developing the rigid (and seldom used) strategic plans so prevalent in academic institutions (Keller, 1983). Traditional strategic planning assumes that the organizational environment is stable and that decisions can be based on reliable projections of markets and sources of supply. Organizational environments, however, are constantly changing. Few organizational variables remain constant long enough to provide data that would be useful in long-term, rational planning efforts (Mintzberg, 1994). Strategic thinking for innovation depends on a different set of assumptions. The first assumption is that organizations and their environments are socially constructed and are constantly in flux (Baxter & Montgomery, 1996; Berger & Luckmann, 1966). Second, economic trends, market forces, and activities of the competition are difficult to project accurately in the long-term, and they may be an inappropriate basis for strategic planning (Hurst, 1986). Finally, administrators may be more successful when they attempt to change the organizational environment, rather than react to it (Pfeffer & Salancik, 1978).

Pfeffer and Salancik (1978) suggested that administrators may assume three distinct roles: a symbolic role, where administrators appear as heroes or scapegoats; a responsive role, in which they assess and react to the organizational environment; and a discretionary role, where they alter or create the environment. Symbolic administrators avoid making decisions, and rely on luck or chance to yield positive outcomes (Barnard, 1938). Responsive administrators seek to change the structure or size of an organization to better capitalize on market trends (Chandler, 1962). Discretionary administrators

negotiate, lobby, and promote the interests of their organization in efforts to gain external support for alternative futures (Pfeffer & Salancik, 1978). These alternative futures are designed, in large part, by organizational members themselves. Innovative strategic thinking involves taking an active role in shaping the external environment.

Summary of Recommendations

Study findings commend a number of administrative interventions with potential for enabling the development of organizational climates that support innovation. Providing appropriate feedback to organizational members may reinforce perceptions of continuous development. Feedback may motivate organizational members to search for new ideas, and indicate that the organization is receptive to their input. Being receptive to feedback from members may indicate that organizational leadership is supportive of change and favors re-evaluation of goals and priorities. The expression of conflict may reflect organizational norms for diversity, as diverse and differing perspectives are applied to problem-solving opportunities. The specification of organizational strategy may produce a level of consistency that enables members to perceive a constancy of purpose in their actions. Delegation of tactical decisions to the organization's technology may lead to high-level perceptions of ownership, where organizational members come to view innovations as their own ideas. A summary of recommendations is included in Table 25.

Table 25. Summary of Recommendations.

Administrative Recommendation	Related SSSI Domain
• Providing Feedback	Continuous Development
• Receptive to Feedback	Leadership
• Communication Forums for Conflict	Norms for Diversity
• Specify Strategy	Consistency
• Delegate Tactics	Ownership

Recommendations for Future Research

This study provides baseline data related to support for innovation at a community college with an international reputation for engaging in innovative programs. Replication of this study with other types of postsecondary organizations -- those deemed innovative or those considered more traditional -- may provide useful comparative data and extend the generalizability of findings. Open communication and work autonomy, for example, were associated with perceptions of support for innovation in an organization deemed innovative. Future research may consider whether such associations are typical in non-innovative organizations, or whether constriction of communication and control are related to perceptions that the organization resists change.

Findings may be extended through research related to the communication patterns and processes evident in innovative organizations. Communication was the most important independent variable in this study; accounting for approximately one-half of the variance in support for innovation, and approximately one-third of the variance when controlling for demographic variables. Little is known about the communicative behaviors individuals utilize in the course of innovation (Lewis, 1997). Qualitative research methods, including verbal interaction analysis (Bales, 1950; Hirokawa, 1982) and semistructured interview techniques (Miles & Huberman, 1984), may be useful in identifying communication modalities common among innovative organizations. Parallel studies of organizations with low SSSI scores may suggest reasons for differences associated with interpersonal interaction patterns.

Qualitative inquiry may extend to questions related to post-adoption behaviors (Kimberly & Evanisko, 1981). The study of post-adoption behavior may indicate ways in which both individuals and innovations change over time. Different categories of behavior may be identified for successful innovations and for those innovations that fail or are rejected by implementers and/or clients. Behaviors related to exnovation -- the process of divesting a previously-adopted innovation -- may also serve as foci for future research.

Behavioral and attitudinal responses may differ in terms of whether an innovation is internally-generated or externally-induced (Spender & Kessler, 1995). Interviews, surveys, and observational techniques may reveal patterns of response commonly associated with mandated change, as well as patterns related to innovations initiated by

the organization itself. Perceptions of support for innovation may differ between organizations where innovations are typically externally-induced and those where new ideas are generated by members of the organization.

Similarly, perceptions of support for innovation may differ depending on what type of innovation is being considered. Some organizations may be supportive of administrative innovations -- frequently initiated by administrators --, but remain somewhat hesitant to endorse technological innovations -- often initiated by staff members or other non-managers. Researchers may differentiate administrative and technological innovations as dimensions of perceived support for innovation in efforts to obtain context-specific measures of the construct.

Conclusion

Community colleges have long been considered the most innovative sector of higher education (Roark, 1985). It is also interesting to note that community college administrators have been perceived as more authoritarian than administrators in other higher education sectors (Lahti, 1979). Top-down pressures for adoption may account for the innovative history of community colleges.

Authoritarian models of innovation, however, may be yielding to more participatory forms of community college administration. The complexity of institutional environments encountered by community colleges suggests that these institutions direct the attention of all organizational members to the search for new ideas. External complexity, in this instance, is matched by internal complexity and differentiation

(Lawrence & Lorsch, 1967). Synergies resulting from the collective action of autonomous professionals may yield organizational forms that not only respond to, but shape institutional environments.

This study was designed and conducted from a social constructionist perspective. Alternatively, structural-functionalist views suggest that important insights into innovation and organizational performance in community colleges can be obtained through the study of organizational structures; especially those structures affected by expectations of larger socio-political and economic environments, which impose functional requisites on which organizational continuity and survival may depend (Parsons, 1951; Pfeffer & Salancik, 1978).

Community colleges' missions will be extended within the context of an information society. Reorganization and consolidation to improve, ostensibly, their responsiveness to their communities are likely to accompany extensions of mission. In the course of change, focal structural and performance variables may reflect preferences for innovation associated with efficiency and productivity. The structures of management of innovation, under such circumstances, may emphasize technical and market conditions and the maximum use of technical capacities of organizational members. A person's job may be minimally defined, for example, so that it may be shaped by her/his special abilities, creative capacity, and individual initiative in a fluid, dynamic work environment with shifting, multiple demands. Related research may focus on risk-taking and innovation associated with the deployment of technical expertise within structures that redefine the utility of functional differentiation and traditional

relational patterns (Estes, 1962). Research on innovation from structural-functional and social constructionist perspectives may converge in out-years at a confluence where we may gain improved understanding in terms of how innovation may gain or lose from the loss of formal structure, and how structures affect relationships in innovative systems in education where almost everyone is continually working out his/her own actions within temporary frameworks of decision set, in part, by people around him/her.

Institutional effectiveness and legitimacy may depend on the extent to which institutions are able to innovate and shape external conditions to accommodate desired alternative futures. The role of the administrator in an innovative community college is to facilitate the development of a climate that supports creativity and exploration. Study findings suggest that maintaining open communication and providing freedom and flexibility to faculty members are important correlates of support for innovation. The results of this study may assist administrators in developing strategies and policies that can enact supportive, innovative organizational climates.

APPENDIX

QUESTIONNAIRE

Support for Innovation

Evaluate each of the statements below and indicate how well it describes your organization. Circle your response to each statement. Please answer all questions.

1 - Disagree Strongly
2 - Disagree Moderately
3 - Disagree Slightly
4 - Agree Slightly
5 - Agree Moderately
6 - Agree Strongly

1. This organization is always moving towards the development of new answers.
2. This organization can be described as flexible and continually adapting to change.
3. I can personally identify with the ideas with which I work.
4. Our ability to function creatively is respected by the leadership.
5. Around here people are allowed to try to solve the same problem in different ways.
6. I help make decisions here.
7. Creativity is encouraged here.
8. People talk a lot around here, but they don't practice what they preach.
9. People around here are expected to deal with problems in the same way.
10. The people in charge around here usually get the credit for others' ideas.
11. There is one person or group here who assumes the role of telling others what to do.
12. Sometimes the way things are done around here makes matters worse, even though our goals aren't bad.
13. The role of the leader in this organization can best be described as supportive.
14. The leaders in this organization talk one game but act another.

15. In this organization, we sometimes reexamine our most basic assumptions.
16. The members of our organization are encouraged to be different.
17. People in this organization are always searching for fresh, new ways of looking at problems.
18. The way we do things seems to fit with what we're trying to do.
19. Persons at the top have much more power than persons lower in this organization.
20. Work in this organization is evaluated by results, not how they are accomplished.
21. A person can't do things that are too different around here without provoking anger.
22. The leadership acts as if we are not very creative.
23. I really don't care what happens to this organization.
24. I am committed to the goals of this organization.
25. The methods used by our organization seem well suited to its stated goals.
26. Most people here find themselves at the bottom of the totem pole.
27. My goals and the goals of this organization are quite similar.
28. Members of this organization would rather be working here than anywhere else.
29. In this organization we tend to stick to tried and true ways.
30. Assistance in developing new ideas is readily available.
31. New ideas can come from anywhere in this organization and be equally well received.
32. On the whole, I feel a sense of commitment to this organization.
33. We're always trying out new ideas.
34. People in this organization are encouraged to develop their own interests, even when they deviate from those of the organization.

35. Members of this organization feel encouraged by their superiors to express their opinions and ideas.
36. The people here are very loyal to this place.
37. Members of this organization realize that in dealing with new problems and tasks, frustration is inevitable; therefore it is handled constructively.
38. I have the opportunity to test out my own ideas here.
39. I feel a real sense of responsibility for my work.
40. In this organization, the way things are taught is as important as what is taught.
41. This organization is open and responsive to change.
42. A motto of this organization is "The more we think alike, the better job we will get done."
43. My ability to come up with original ideas and ways of doing things is respected by those at the top.
44. This place seems to be more concerned with the status quo than with change.
45. The role of the leader here is to encourage and support individual member's development.
46. The best way to get along in this organization is to think the way the rest of the group does.
47. Individual independence is encouraged in this organization.
48. Nobody asks me for suggestions about how to run this place.
49. One individual is usually the originator of ideas and policies in this organization.

50. In this organization, the power of the final decision can always be traced to the same few people.
51. Creative efforts are usually ignored here.
52. Once this organization develops a solution to a particular problem, that solution becomes a permanent one.
53. Around here, a person can get into a lot of trouble by being different.
54. I have a voice in what goes on in this organization.
55. People here try new approaches to tasks, as well as tried and true ones.
56. Others in our organization always seem to make the decisions.
57. The leader's "pets" are in a better position to get their ideas adopted than most others.
58. The main function of the members in this organization is to follow orders that come down through channels.
59. I mostly agree with how we do things here.
60. There is little room for change here.
61. These aren't my ideas, I just work here.

Communication Openness

The following statements may or may not be descriptive of communication in your community college. Please read each statement and decide to what extent you feel the statement applies. Circle your response to each statement. Please answer all questions.

1 - Strongly Disagree
2 - Moderately Disagree
3 - Slightly Disagree
4 - Neutral
5 - Slightly Agree
6 – Moderately Agree
7 - Strongly Agree

1. It is easy to talk openly to all of my co-workers in this community college.
2. Communication in this community college is very open.
3. I find it enjoyable to talk to other co-workers in this community college.
4. When people talk to each other in this community college, there is a great deal of understanding.
5. It is easy to ask advice from any co-worker in this community college.

Work Autonomy

Evaluate each of the statements below and indicate how well it describes your organization. Circle your response to each statement. Please answer all questions.

1 - Strongly Disagree
2 - Moderately Disagree
3 - Slightly Disagree
4 - Neutral
5 – Slightly Agree
6 – Moderately Agree
7 – Strongly Agree

1. I am allowed to decide how to go about getting my job done (the methods to use).
2. I am able to choose the way to go about my job (the procedures to utilize).
3. I am free to choose the method(s) to use in carrying out my work.
4. I have control over the scheduling of my work.
5. I have some control over the sequencing of my work activities (when I do what).
6. My job is such that I can decide when to do particular work activities.
7. My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others.
8. I am able to modify what my job objectives are (what I am supposed to accomplish).
9. I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives).

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